A RADICAL VISION FOR WHAT'S POSSIBLE IN THE AGE OF WARMING

# THE FUTURE EARTH

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# Dedication

For Roscoe and Zeke

# Epigraph

*If I can't save us*

*then let me feel you*
*happy and safe*
*under my chin.*

*If this will drown*
*or burn*

*then let us drink starlight*
*nap under trees*
*sing on beaches—*

*the morning rush to sit indoors is for*
*what, again?*

*If we are dying*

*then let me rip open*
*and bleed Love,*
*spill it, spend it*
*see how much*
*there is*

*the reward for misers is*
*what, again?*

*If this life is ending*

*then let me begin*
*a new one*

—Lynna Odel (2019), used with permission

# Contents

# Part I

# Part II

# 2020–2030:
# Catastrophic Success

*I took a video on my phone because I thought that was the end of all of us. I took a video and put my phone in a dry bag with my ID and my wallet. I thought, "This is going to float and somebody's going to find it." To give them an idea of what it was like during the storm. I wasn't thinking at all about, if we take this picture here, more people will see this. I wasn't thinking too much about how it was going to be seen, I just thought, let me give people an idea of what's going on here at this time. I was afraid that anything could happen.*

—John "Junior" Rulmal, in 2015, recalling when Typhoon Maysak hit his home island of Ulithi, part of the Federated States of Micronesia

The first human inhabitants of the Marshall Islands were pathfinders, migrating between remote islands with an intimate knowledge of the winds and weather of the Pacific. They were among the best sailors who ever lived, with an incredible connection to the wind and the ocean. Their intimate knowledge of the world around them allowed them to thrive amid impossible odds. Now, more than a millennium later, the weather has become an enemy of their descendants.

Buoyed by thousands of years of rootedness on these coral fringes, in some places only a few feet wide, they refuse to be cast aside, or forgotten to history. Their experience is forcing once-unimaginable questions: What would it take to leave the place you call home? And what does it mean when you lose the place where your ancestors lived—the place that literally defines you? What does it mean to know your home will be annihilated? What does it mean to decide to stay and fight anyway?

Halfway between Hawaii and Australia, Micronesia—the name given to a patch of ocean twice the size of the United States—includes the Marshall Islands, Palau, Kiribati, Nauru, the Federated States of Micronesia, and three US territories: the Northern Mariana Islands, Guam, and Wake Island. These nations and territories total just one thousand square miles of land, less than half the size of Delaware. (A quarter of that total land area is the

main island of Guam, Micronesia's largest land mass, itself roughly the size of Chicago.) About half a million people live on the two thousand islands of Micronesia, a constellation of safe harbors across a huge watery vastness.

The Marshall Islands is not a small island state, it's a large ocean state. Just offshore, the reefs of the Marshall Islands contain some of the most productive and biodiverse waters in the world. The islands' 29 coral atolls contain 1,156 individual islands spread across a stretch of the Pacific as wide as the distance from Texas to North Dakota, an oceanic supercontinent. The islands have a maximum elevation of just thirty-two feet above sea level, though the vast majority of the land here lies less than six feet above the tides—exactly the amount that global oceans are expected to rise this century.

This isn't the first time the Marshall Islands have faced annihilation. Just one lifetime ago, during the Cold War, these islands were used as target practice for US nuclear weapons. A containment dome still sits on Runit Island, designed to sequester radioactive material from nearby fishing grounds for centuries. It wasn't designed for rising sea levels, though.

And so the Marshall Islands have long been the epicenter of a global resistance movement, well before their successful effort to convince the world to aspire to a warming target of 1.5 degrees Celsius at the Paris climate talks in 2015.

With the signs of rising seas and increasingly extreme weather, some Pacific natives have started to think of themselves and their homelands differently, holding out hope that truly radical action would be enough to turn back time and reverse some of the damage that's already been done.

In 2013, when Typhoon Haiyan roared through the tropical Pacific, it brought with it a new era. Before hitting the Philippines, Haiyan moved through Micronesia, passing as close as five miles offshore from the tiny island of Kayangel in Palau. The strongest winds in a tropical cyclone circulate around the central eye, a cloud-free region of descending air just a few miles wide caused by outflow from a ring of very intense thunderstorms. Haiyan's traverse near Kayangel brought winds strong enough to devastate the island. Reporting for the Solutions Journalism Network, Ari Daniel said that four families survived the storm by crowding into the only place on the island with concrete walls: the hospital bathroom. After the storm passed, local officials evacuated all 138 people who lived on the island and abandoned it for months while repairs could be made.

Haiyan was a superstorm—the strongest tropical cyclone to make landfall in recorded world history. It hit with estimated 195-mile-per-hour sustained winds—and I say estimated because no weather station could survive such ferocity. That figure is derived from weather satellite estimates of the temperature of Haiyan's cloud tops—a proxy for the vigorousness of its thunderstorm activity (taller thunderstorms have stronger winds and colder signatures as seen from space). Haiyan maxed out the most commonly used satellite-based intensity measurement, exceeding the theoretical maximum strength of a tropical cyclone as conceived by the meteorologists who invented the scale. Using the five-tier US classification system for hurricanes, which grades storms based on their maximum wind speed—the easiest part of a tropical cyclone to measure because rainfall and storm surge can vary strongly with local topography—Haiyan would have been a Category 6.

By all accounts, Haiyan utterly transformed the region. In the immediate aftermath, BBC described "a wasteland of mud and debris." The Philippines' lead climate change negotiator, Yeb Saño, was in Warsaw, Poland, at the time, attending the annual summit of world leaders working toward a global agreement to limit human interference with the climate system. In a tearful address to the other delegates, Saño was defiant. "We may have ratified our own doom," he said. "We refuse, as a nation, to accept a future where super typhoons like Haiyan become a way of life. We refuse to accept that running away from storms, evacuating our families, suffering the devastation and misery, counting our dead, become a way of life. We simply refuse to."

To use a phrase from the Italian scholar Antonio Gramsci, those on the front lines of climate change have "pessimism of the intellect, but optimism of the will." Speaking out against the slow pace of the international effort to combat climate change, Saño began a voluntary fast and unwittingly started a social movement. By the end of the thirteen-day meeting, hundreds of thousands of people pledged their support from around the world. The combination of the unseen ferocity of Haiyan and Saño's selfless words and actions forced the urgency of the changing weather to the forefront of the conversation about climate change and our collective consciousness. He also laid the groundwork for the first-ever global climate agreement in Paris two years later.

On its own, the Paris climate agreement won't be enough to prevent the climate-related demise of Saño's Philippines or the Marshall Islands. With the stakes so high, and sea levels continuing to rise, the dominant narrative of these places, as told by outsiders, is that they are the first nation-casualties of climate change. Within this narrative, the Marshall Islands and the Philippines aren't considered actual places; they are a metaphor for humanity itself, a warning straight out of the Old Testament. Once pure and unspoiled, they have been unjustly sentenced to oblivion, a harbinger of something worse still to come. Within this narrative, no happy ending is possible; failure is inevitable, a fate sealed to history, lost to the rising tides.

That's not how twenty-two-year-old Selina Leem tells the narrative of her birthplace. In the Marshall Islands, she witnessed what was happening with her own eyes. Standing on the narrowest part of Majuro Atoll, her home island, she felt the water crowding in around her with renewed urgency.

During a strong storm one afternoon, she happened to look out her window and saw the waves crashing on her grandparents' graves—the first time she felt personally insulted by the ocean. At that moment, she knew she could no longer be silent.

"I kept thinking the whole world was turning against us, and we haven't contributed anything and we're the ones suffering," Selina told me. "I was really angry at how blind and ignorant the rest of the world was. We basically have to somehow go above that to make them do something." Faced with an impossible task, Selina quickly rose to global prominence as a leading moral voice on a rapidly changing planet.

When those of us in rich countries think about Micronesia at all, we probably think of the warming seas and increasingly extreme weather as something that is happening to people who have no voice or power to direct their own fate. Selina knows better. In that sense, she's already learned what everyone on Earth will need to understand quickly: that we have entered an era when we all are connected by our changing atmosphere, and that a duality of life and death has already defined our shared cultural moment. By our daily actions, we are changing the living conditions for the next generations—for better or for worse. The implications of that knowledge could inspire a whole new understanding of what it means to be alive on this planet.

As an eighteen-year-old Marshallese delegate to the 2015 Paris climate summit, Selina watched as the world debated phrases and sentences that would endanger or preserve her homeland's existence within her lifetime. In the waning hours of the conference, tensions rose between the United States and China—the two leading emitters—and a loose coalition of dozens of the world's most vulnerable countries sprang up to try to stage a last-ditch effort to prevent the talks from collapsing. Tony deBrum, who was then the Marshall Islands' foreign minister and the head of their negotiating delegation, assembled a "high ambition coalition." Led by DeBrum, the coalition ultimately won a stronger agreement than anyone had been expecting. The Paris summit culminated in the world's first agreement to reduce emissions of the pollutants that are making weather more extreme and causing the oceans to rise.

In Paris, DeBrum asked Selina to tell her story—and make a case for her country's very existence. In her speech, Selina didn't shrink from this reality. After introducing herself to dozens of heads of state and delegates from 196 nations as a "small island girl with big dreams," she recalled her home's vulnerability, standing on the atoll she grew up on: "On my left is water, on my right is water. I am surrounded by water." She said she only began to be afraid of the water after her grandfather told her about the ice melting at the poles when she was six or seven, which at the time seemed to her like a horror story.

"Sometimes when you want to make a change, then it is necessary to turn the world upside down," Selina said. "This agreement should be the turning point in our story, a turning point for all of us."

As Selina spoke, she held up a strand of coconut husk. "The coconut leaf I wear on my hair and I hold up in my hand is from the Marshall Islands. . . . I hope you keep it and show it to your children and your grandchildren, and tell them a new story, about how you helped a little island and the whole world today."

Though she was just a teenager at the time, Selina spoke with the fiery wisdom of someone who had already seen too much. While the seas grew angrier and more insistent, so too did Selina—and millions of other people from island homes around the world who refused to watch the oceans swallow their homelands.

"If we do have to lose our islands, then we are right now no longer just fighting for the Marshalls; we're fighting for the rest of the world. As I've

come to realize, the Marshall Islands are not the only vulnerable country affected by climate change. There's so many other communities, so many other countries, so many other societies around the world that are also affected," Selina told me. "So when we're fighting for this, we're not just fighting for ourselves; we're also fighting for those other people."

After she returned home from Paris, Selina received a flood of responses from people all over the world, some intensely negative, some dismissive of her concerns—even as they claimed to be supporters. One person said that although they agree the world should take action on climate change to help save her islands, "we just can't afford it." During another event in Canada a few months later, the woman introducing Selina solemnly said that many of the flags on the stage might not be seen in the next few years. The crowd silently nodded.

Selina was shocked. "It just hit me. I was like, wow, the rest of the world is already saying goodbye. I just sat back and thought, *What is all this advocating for? What is the role of us Marshallese and us islanders, going around and telling the world that we still want our islands to be there?* Yet it's already very obvious from the woman's response and from the crowd, the way they all accepted it very solemnly, that it's already going to happen. No matter what we do, it's still going to disappear. There are moments like this where I really just want to start yelling and pointing fingers. How many people have already stood on this stage where I am standing? How many more people are going to be crying here, and their pleas gone to ears where no one listens? We are not ready to say goodbye."

Despite the inevitability of catastrophe, they refuse to be annihilated.

Still, storms increasingly batter the islands' coastlines and break down the coral fringes and seawalls that protect the graves of her ancestors. Within those waves, Selina feels a visceral connection to the rest of the world. She recognizes the faces of the first coal barons and oil wildcatters. She sees the busy modern highways and smoking factories in far-off cities she'll probably never visit. She sees your face and mine—people who've grown up amid the comforts of a fossil-fuel-powered economy yet who've never heard of her islands or the fear and nervousness that the rising seas are bringing to her friends and family. With the seeming force of an entire planet, each high tide brings more of the ocean ashore—a watery message of contempt.

In Paris, Selina gave voice to what everyone was thinking: *If the world embarks on a path that essentially sacrifices the existence of entire nations as a negotiating point, where will future leaders draw the line?* Her voice was clear: "This agreement is for those of us whose identity, whose culture, whose ancestors, whose whole being, is bound to their lands. . . . If this is a story about our islands, it is a story for the whole world."

For some in the room, it was the most memorable moment of that historic meeting. Selina's speech was met with a standing ovation.

In the weeks before the Paris climate summit, a graphic photo of a young Syrian boy—drowned on a beach in Turkey after a harrowing attempt by his family to escape a nightmarish war—overwhelmed the world's senses like a punch to the gut. The moment was a deeply personal, tragic, and urgent slap in the face for those who had been paying little attention to what has become Earth's largest forced mass movement of people since World War II.

Multiple studies have now shown that the Syrian crisis was triggered in part because of the fallout and mismanagement following one of the worst droughts in centuries—linked to shifting rainfall patterns due to a warming planet. Along with the pure and immediate horror that humanized a refugee crisis many people knew of only via statistics, the photo said clearly that it was not just rising seas but also the loss of agricultural areas that might redefine a world where rapidly changing weather conditions are beginning to have profound consequences.

The Pentagon has warned that shifting patterns of droughts, heat waves, and melting ice have already become one of the planet's biggest security threats. In some parts of the world, like Syria, this has helped to spark brutal wars and forced people to permanently abandon the only places they've ever known. The Syrian conflict has driven much of the current round of mass migration, but it also foreshadows something far worse: by the middle of the twenty-first century, the UN estimates that more than 250 million people worldwide will be forced to move away from environmentally vulnerable parts of the world if nothing changes.

Shortly after the photo of the Syrian boy emerged, Tony deBrum set the stakes high on behalf of the world's front-line climate nations: "Displacement of populations and destruction of cultural language and tradition is equivalent in our minds to genocide." In the months following

Paris, a delegate from Tonga summed up the mindset in the islands from here on out: "In 10 years we drown. . . . Until then, we work."

This century will unfold astride intertwined planetary and human tipping points. Because the weather is now political, it has generated a social movement. Instead of getting lost in the horror of existential change seemingly beyond their control, people like Selina have helped transform the Marshall Islands, along with other countries on the front lines of the climate emergency, into a place of courage. Selina's speech in Paris also signaled the beginning of a global shift of power: the century's middle decades will be guided by the moral authority of youth and those living at the front lines of climate change—demanding that their voices be heard. For Selina's generation, what's happening is much more than changes in the weather and increasingly persistent tides. It's about working together to create a new world that is more peaceful, prosperous, and fair.

* * *

Incontrovertible evidence of human influence on rainfall, temperature, sea level, and cloud cover means that our daily experience of being alive on our planet is now different than it has been throughout the entirety of the hundreds of thousands of years of modern human existence, and is being actively mediated by people in power. That daily reality—and the continued ability of humanity to thrive on this planet—is now subject to the choices we make as individuals, as communities, and as a broader society. Since weather affects almost everything we do, everything from food production to transportation to public health to the very viability of our cities, the fact that human activities are fundamentally changing how the weather operates will create winners and losers. Weather is, more than ever before, a matter of social justice. The atmosphere is now both a weapon and a source of life, and the way we talk about our new shared reality will either empower the communities who stand to lose everything or risk further tilting the scale in favor of the people who will profit from continued business as usual. As with all political topics, words matter, and the way we talk about the weather matters now more than ever.

International politics has long thought of climate migrants as a problem to be managed, not as a civil rights crisis, stripping families of their

humanity during a vulnerable time. There still is, officially, no such legal thing as a "climate change refugee"—the United Nations does not recognize the atmosphere or the environment as an entity that can inflict harm that would qualify a person for refugee status.

During a presentation to the UN Security Council on climate and migration, Michael Gerrard, founder and director of the Sabin Center for Climate Change Law at Columbia University, outlined options for action available under Article 39 in Chapter VII of the UN Charter. The article states that the council "shall determine the existence of any threat to the peace, breach of the peace, or act of aggression and shall make recommendations, or decide what measures shall be taken . . . to maintain or restore international peace and security."

The council, Gerrard said, is able to evaluate whether climate-related displacement poses a genuine threat to peace and, if so, initiate plans for minimizing and coping with large-scale refugee issues. When the council first debated the broader risks of climate change in 2007, including forced migration, it was a controversial decision. Developing countries feared the council might not adequately represent their concerns. Now, though, it has become increasingly accepted that small island states, in particular, face an existential risk due to climate change and that the Security Council could play a key role in encouraging action. "This effort could also spark recognition of the need for significantly greater efforts at mitigation," Gerrard told me. "Climate change offers the Security Council the opportunity to be proactive in preventing threats to peace."

At the same time, the specter of a world pushed to the brink by a surge of climate migrants demanded an anticipation of the special rights of the displaced, the obligations of high-emitting countries to facilitate resettlement, and enforcement of these rights and obligations by the international community. Even though greenhouse gas emissions unequivocally cause harm, it is impossible to assign blame to an individual act resulting in a specific forced migration.

That makes for "a wicked problem," Jessica Wentz, Gerrard's colleague at the Sabin Center, told me. She said it at least partially explains why the international community has been reluctant to take up this issue in any meaningful way. Wentz believes a new protected status applying specifically to environmental migrants might help secure the rights of people forcibly displaced in the future by rising seas or megadroughts. Such

a protected status could eventually provide a pathway to citizenship in a foreign country following a climate-related disaster or a slow-onset event, such as sea-level rise.

Along with the leaders of other poor and vulnerable countries, the president of central Pacific island nation Kiribati, Anote Tong, called for a global system of reparations that would take into account the loss and damage climate change is already causing. At the Paris summit, representatives of Kiribati and Fiji announced an agreement that, in principle, allowed the more than one hundred thousand residents of Kiribati to attain residency in Fiji in the event rising sea levels make their homes uninhabitable. In Bangladesh, where an estimated two hundred thousand people are made homeless by erosion each year, the country started a bold plan to reclaim land from the surrounding waters to aid in resettlement. Meanwhile, future migrants fleeing rising seas in the Maldives and Tuvalu may not have a homeland to return to.

From a legal perspective, the looming crisis raises an interesting, though morbid, question: What happens when these island nations, for all practical purposes, cease to be? Under current international law, a country's exclusive economic zone—for which it retains rights to benefit from fishing, mineral exploration, and tourism, for example—is measured from its coastline. If an island disappears because of sea-level rise, will its economy also be wiped from the map? What happens when saltwater intrusion into porous coral soils makes an island effectively uninhabitable? If a place has the appearance of impermanence, how long before the world will see it as already gone? After all, the loss of a place doesn't necessarily happen the day the island goes underwater—an economic exodus may begin decades in advance. Will citizens of a former island nation, scattered throughout the world, still be able to advocate as a collective within the United Nations?

These are the sorts of questions that keep Gerrard and his colleagues up at night. "I think the countries of the world need to start thinking seriously about how many people they're going to take in," Gerrard told me. "The current horrific situation in Europe is a fraction of what's going to be caused by climate change."

Gerrard has devised an interesting proposal: this century's climate migrants should be provided permanent residency abroad in a manner proportionate to historical national emissions. That means the United States,

which holds the dubious honor of being the world's largest historical emitter of greenhouse gases, would be on the hook for millions of displaced people. But considering the anti-immigration rhetoric that has emerged during recent years, voluntary policies that help provide safe harbor for many orders of magnitude more from inundated Pacific islands or parched Sudanese farmland seem almost unthinkable.

In an op-ed published by *The Washington Post* in 2015, Gerrard made a forceful case that the United States bears a unique moral responsibility to confront the climate migrant crisis with a compassionate and welcoming resettlement policy. "International law recognizes that if pollution crosses national borders, the country where it originated is responsible for the damages," he wrote. "That affirms what we all learned in the schoolyard: If you make a mess, you clean it up." Under a worst-case-scenario estimate, the US would be responsible for housing a whopping 67 million people during the next thirty years, more than 20 percent of its current population. The best way to preclude such potentialities, Gerrard told me, "is radical, rapid reductions in greenhouse gas emissions."

The Marshall Islands has been here before: when some islands were forcibly depopulated and used as nuclear test sites during the early years of the Cold War—sixty-seven bombs were detonated in total, the land rendered uninhabitable for generations. Those wounds are still fresh in the minds of many Marshallese.

About one-third of the Marshall Islands' population of seventy thousand now live abroad. Many chose the United States as a consequence of a compact of free association established in the aftermath of the testing that allows Marshallese citizens to move to the US unimpeded.

If you look closely at threatened places like the Marshall Islands, there is a simultaneous apocalypse and cultural rebirth. With so many people already living apart from their homeland, there remains a strong push to preserve traditional cultural practices, like medicines, weaving, and celebrations—a way of knowing the world that is intimately tied to the plants and animals and weather of the islands.

According to the experiences of people I've spoken with in the Marshall Islands, almost no one leaving will list weather or climate as the main reason for their move. And many of them didn't "flee" or consider themselves "refugees"—they are regular people who wanted to improve their lives.

Kianna Juda-Angelo has tried to imagine and build a Marshall Islands that will not only survive but thrive. She was born there but raised in Oregon—she was adopted as an infant and only recently reconnected with her Marshallese family. That identity, found later in life, transformed her outlook and buoyed her hope.

"I get a lot of people that say, 'Why should I give to your nonprofit if you're going to be doing work in a place that's going underwater?' And I say, specifically to other people here on the West Coast: 'Any day we are due for a really big earthquake, and that earthquake is going to put homes underwater and flatten homes with landslides. But we're still here, and we still build on our fault lines, and we will build in the craziest places in Oregon because it's one of the most beautiful places—we love the outdoors, we love the trees, we love the mountains, the list goes on and on and on.' I remind people about their own surroundings first, and then we can get into the conversation easier: there are a lot of people that don't want to move from the Marshalls."

Kianna told me it's impossible to think of our world as a place that doesn't include the Marshall Islands. And that's forced her to be forward-thinking. "I'm actually moving back. My family and I will be moving back, and we'll be building a place there.

"We have to switch our way of thinking to: There's going to be people who want to live there. There's going to be people who come back, like me, so how is it that we can work with the environment? I'm not going to force all the Oregonians to move. We're not going to force the people from the Bay Area to get out because the Big One is going to be devastating. How many earthquakes have we gone through, and we still haven't moved? How many floods has the South in the United States gone through, and they're still not moving, right? Nobody's moving! It's so easy for outsiders to categorize a whole group of people and label them as dumb. Why would you want to rebuild New Orleans, a sinking city? New York City is also an island. The subway system there is incredibly vulnerable. Every coastal city on Earth is going through the same thing. It's easy to blame victims for not taking some sort of action to prevent their loss or abandon their home. I wouldn't want someone to tell me to abandon my home."

One idea Kianna is already working on is a floating greenhouse project. Using decommissioned barges, she plans to create sustainable greenhouses that function on their own. In the same vast lagoons at the center of the

atolls that the US military used as bases during past wars, Kianna is working with scientists and engineers to establish a model for a sustainable Marshall Islands. “There are so many floods now on all the atolls that they’re intruding on people’s gardens and palm trees. How can we address this issue?”

Kianna is starting to find an answer. Using a closed-cycle greenhouse, people will have access to fresh food and water no matter the weather outside. Inside the barge, according to Kianna, “there’s a fish farm below, the fish poop feeds the plants, the plants get the sweat from the glass—it literally rains inside. It’s actually really amazing. Our test barge has already been in place for two years.”

Sometimes being ocean people means knowing when to move on, and when to stay and fight. The type of courage Kianna and Selina embody will help inspire us all into action over the next decade.

## 2020–2021: THE SPARK, THE WILDFIRE, AND THE BACKLASH

The start of the 2020s wasn’t easy. As a new decade dawned, the world was awash in thunderstorms, literal and figurative. We watched in horror as catastrophe after catastrophe materialized. We didn’t always realize it as it was happening, but we were grieving a world we knew was never coming back. We only held the promise that a better world would take its place.

Meteorologist Deke Arndt, chief of the National Oceanic and Atmospheric Administration’s Climate Monitoring Branch, called the start of the decade a time of climate “goodbye”—a loss of the familiar surroundings that defined our beings, that made us who we were. Like all goodbyes, it was painful, but it enabled us to embrace our new reality. In saying goodbye, we began to recover our ability to console, to comfort, to heal, and to act.

As disaster after disaster struck, humanity faced a moment of rawness. We mixed grief, rage, and hope as we set new records for mass protest. People who just a few months before had never considered themselves to be particularly “involved” were organizing their friends and neighbors and plotting a different course. Finally, the political and the ecological began to

merge. Millions of simultaneous conversations led to the same conclusion: We don't feel ready, but we have to do this. It's now or never.

In 2020, on the fiftieth anniversary of the first Earth Day, just five years after the most recent major El Niño, scientists began to receive signals that the Pacific Ocean was warming again, boosting the risk of wildfires, heat waves, droughts, floods, and tropical cyclones around the world. The El Niño conditions, combined with a bit of bad luck, set the stage for a period of global calamity outside the bounds of modern human experience.

As the US presidential election rolled on, it became clear that even the most progressive candidates still weren't prepared for the urgency with which they'd need to model an entirely different society. At times it felt like we were living in a virtual world, a caricature of all the trendy dystopian disaster movies of recent years, with events too on the nose to be believable.

Deadly heat waves occurred in major cities. Temperatures in Chicago reached 110°F (43°C) for three days straight, and the horrific toll became seared in the public consciousness—indelible images of door after door spray-painted with police markings and, in the days and weeks that followed, around-the-clock news updates chronicling a nation in mourning. Temperatures soared to similar levels in Beijing, Moscow, and Berlin—cities where such temperatures are unheard of. At the same time, severe droughts ravaged southern Europe, southern Africa, and the entire Amazonia region, while major flooding occurred throughout Southeast Asia. As a result, a global food crisis exploded, which affected a quarter of a billion people, heightening simmering international tensions. For a few scary months, the United Nations was unable to provide food aid and other relief services to dozens of countries most reliant on food imports as a result of past colonialism and distortions of capitalism—especially countries in the Caribbean, North Africa, and East Asia.

Warmer ocean temperatures in the Pacific due to El Niño set off a spate of typhoons. The worst hit China's Pearl River Delta, which includes the cities of Hong Kong, Guangzhou, Shenzhen, and Macau, with unprecedented force. Home to more than 60 million people, the Pearl River Delta recently surpassed Tokyo as the world's largest megacity. The landfall of the super typhoon, a Category 5–equivalent that packed winds of nearly 185 miles (300 kilometers) per hour and a storm surge of up to 26 feet (8 meters), far surpassed the impact of 2018's Typhoon Mangkhut, the worst

storm ever before recorded in the region. Even worse, the storm stalled out over land, lingering in the region for days and dumping nearly an entire year's worth of rainfall. Coming on the heels of the coronavirus outbreak, the storm prompted a crisis of confidence in Chinese leadership as millions of displaced people struggled to find adequate food, water, and shelter. A wave of protests spread across the country, building on those in Hong Kong in 2019, calling for more accountability from their leaders.

In the span of a few weeks, a similar-strength storm hit Mumbai—estimated to be a 1-in-650-year event, outside all historical experience. Then the long-predicted "big one" tore through Florida, carving a path of destruction from Miami to Tampa, leaving another million people homeless.

As the 2020 US presidential election neared, a rush of refugees around the world topped 100 million for the first time, tripling the number from just ten years before. Nationalist leaders in the US and Europe failed to officially recognize these refugees' legal rights to safety and instead kicked off an oppressive clampdown on migration. Echoing the words of former president George H. W. Bush at the 1992 Earth Summit in Rio, President Trump declared in a national address: "The American way of life is not up for negotiations. Period." The United States elevated its own supremacy above basic humanity. In closing borders and abandoning coastal assets, Trump's new climate policy left the majority of humanity outside the gates in a breathtaking and futile attempt at eco-fascism that drew quick condemnation around the world.

Fending off impeachment and scandal after scandal, the Trump administration used runaway climate change to justify occupying Miami's Little Haiti neighborhood—some of the highest ground in all of South Florida. With the US Armed Forces, over the course of several months, the administration's "relief efforts" worked to convert the ruins into luxury accommodations to house the affluent fleeing a destroyed Miami Beach. Meanwhile, the government did almost nothing to rebuild the rest of South Florida. Instead, in a misguided attempt to protect US interests, the administration escalated its trade war with China and dispatched the military to blockade the Strait of Malacca, effectively closing off economic relations and plunging the world economy into recession. On cable TV, pundits could only look on in horror as the president's iron-fisted climate plan of mutually assured economic destruction became transparently clear.

A group of scientists in Hawaii had predicted that this sort of thing might happen. A 2018 study examining the cumulative effects of overlapping disasters had demonstrated that climate change was increasing the frequency and severity of many types of extreme weather-related crises. Sooner or later, according to the study, our luck would run out and separate disasters would strike at once, only magnifying their impact.

"None of this happens in a vacuum," retired Navy rear admiral David Titley told me in 2014. "Climate change isn't just an environmental issue; it's a technology, water, food, energy, population issue." Like most military experts, Titley understood then as much as he does today that if we don't reorganize our society in an orderly way, conflict—rather than climate change—will compel people to abandon their homes.

"Most people out there are just trying to keep their job and provide for their family," Titley told me. "[But] if climate change is now a once-in-a-mortgage problem, and if food prices start to spike, people will pay attention. Factoring in sea-level rise, storms like Hurricane Katrina and Sandy could become not once-in-one-hundred-year events, but once-in-a-mortgage events. I lost my house in Waveland, Mississippi, during Katrina. I've experienced what that's like."

The projections have been clear for a long time: more than $1 trillion of coastal real estate in the United States is expected to be literally underwater by 2050—almost 10 percent of our current economy. That's just the coast; it doesn't factor in expanded river flood zones, areas where mega wildfires are almost certain, or farmland that will be rendered unproductive. In the midst of an impending economic collapse, investment bankers around the world didn't need an excuse to wait. At the start of the decade, as the divestment movement began to snowball, investors rushed to pull their money out of anything deemed related to the climate emergency: fossil fuel companies, utilities, insurance companies, industrial agribusiness. The revaluation of homes, businesses, and infrastructure in at-risk flood plains and coastal zones around the world kicked off a global real estate collapse in just a few months—just as Titley predicted. Shipping companies, airlines, mining outfits, automobile manufacturers—any company that relied on the continued flow of fossil fuels into the economy was at risk of bankruptcy almost overnight. The "carbon bubble," as it was called, was popping. Trillions of dollars of land and infrastructure suddenly became worthless, while distressed regions around the world abandoned their public

services entirely. Mass layoffs and government-enforced austerity programs cut off resources and programs for people in need of them most. Once markets started pricing in that collapse, the insurance sued the fossil fuel industry for putting them out of business.

The global crash of stock markets was just the beginning. The recession started out the same: mass layoffs, austerity. But it quickly became clear that major changes were ahead.

On the news, climate change shifted from an occasional sound bite to days-long teach-ins, with story after story filling the airwaves. Climate change gradually became widely seen as an interconnected way to explain everything that was wrong with society. It became about people. It became about lost dreams.

Amid all the economic and climate turmoil, a sharp rise in public discontent pushed governments to the breaking point. From seemingly every direction at once, the public demanded immediate and radical change. Capitalism was imploding. A revolution was starting—a radical reimagining of what was necessary and an ambitious effort to determine what was possible in the face of global uncertainty.

"Think back to the Apollo program," Titley told me in 2014. "President Kennedy motivated us to land a man on the moon. When we talk about climate, we need to do everything we can to set the stage before the actors come on. And they may only have one chance at success. We should keep thinking: How do we maximize that chance of success?"

Against this backdrop, the climate movement morphed and linked with the ongoing protest movements in Chile, India, Hong Kong, Haiti, Ecuador, Lebanon, Catalonia, Bolivia, and Papua. Though each protest focused on different issues, from pro-democracy and anti-austerity movements to anti-war and anti-capitalism, mobilized people around the world realized that it was no longer possible, or necessary, to separate the climate emergency from their lived realities. The youth climate strikes grew into a global general strike. Hundreds of millions of people were on the streets every week, protesting the wars in the Middle East, police violence, crushing student loan debt, the collapsing economy, the lack of decent health care, and the countless other ways the future was being stolen. But the climate emergency captured the most attention.

If the food crisis was the smoldering ember that sparked a revolution in mindset, the wildfires were the blaring siren that removed all doubt of the

emergency's visceral reality. In Oakland, Spokane, the Colorado Front Range, Indonesia, Italy, and Australia, images of the fires, and their aftermaths, burned in tandem with the funeral pyre for society as we knew it—charred small-town main streets and subdivisions and even a few dense urban cores—were seared into the world's psyche. Whole ecosystems were lost to the flames as the world essentially ran out of trained firefighters. The stories of survivors played in endless loops on cable television. The world felt the sheer terror of a planet that had turned against us. People watched in quiet horror as the storms, fires, floods, and droughts precipitated an intense economic recession. Direct losses from the Florida hurricane alone were more than $1 trillion, and the collapse of several multinational insurance companies threw the entire global financial system into chaos.

Since the turn of the century, an intensifying cycle of drought and hotter temperatures, combined with more and more people living in forested areas, has created the ideal environment for megafires, not only in California but also in Portugal, Greece, Tasmania, Indonesia, Siberia, and countless other places around the world. In California alone, 100 million trees died between 2010 and 2020 due to drought and invasive insects pushed into new habitats by the warming weather. And, as lightning and thunderstorms continue to spread northward with the warming weather, fires became regular occurrences in Greenland.

Because everything is connected, the warming ocean waters of the Pacific altered the flow of the jet stream, which steered precious rainfall away from Indonesia and Australia, which unleashed brutal drought and heat waves, which made fires more likely, which released more carbon emissions into the atmosphere, which surged global temperatures, which helped melt more Arctic ice, which exposed darker waters, which absorbed more heat from the sun, which warmed the oceans further. And this was just the surface-level effects. Ecosystems that had been stable for millennia before humans discovered the energy embedded in burnable dirty rocks, the same ecosystems upon which the web of life depends on the only planet where life is known to exist, were decimated in a single human life-span. Our hearts could not and cannot process grief on this scale.

In 2018, the Camp Fire almost totally erased the city of Paradise, California, killing eighty-five people in minutes—the deadliest wildfire in modern US history. Just weeks earlier, the Carr Fire had swept through Shasta and Trinity counties in California as a literal fire tornado, unlike

anything any meteorologist had ever seen before. Not since San Francisco's 1906 earthquake and fires was so much lost to flames so quickly. These fires, and dozens others like them, left Californians literally sifting through the ashes of their homes and their lives.

These were not isolated incidents. Since 2003, California has endured nine of its ten biggest and most destructive fires in history. The 2018 National Climate Assessment report found that more than 50 percent of the acreage burned in California wildfires was the direct result of climate change.

The people responsible for fighting the flames came to realize that, in certain cases, fire suppression was nothing more than a symbolic act. With infernos that explode within minutes and spread at a rate faster than people can run, the first job of firefighters was getting people out of harm's way—risking lives to put out flames became secondary.

For some vulnerable regions, wildfire continued to pose an existential threat. In California, that threat risked a complete collapse of the largest private utility. As a direct result of their role in starting recent fires, PG&E declared bankruptcy in 2019. In a flailing attempt to prevent further economic harm to itself, PG&E instituted Public Safety Power Shutoffs—repeated forced blackouts for millions of people during the height of wildfire season.

What's worse, smoke from these fires likely killed at least ten times as many people as the flames from the Camp Fire—not in one year, but every year. As the deadliest consequence of burning fossil fuels, air pollution killed more than nineteen thousand people worldwide every day, and wildfire smoke made it worse. People literally breathed in the ash from their neighbors' burning homes and they died from it. Like an out-of-control fire, death became contagious.

In the 2020s, living in California came with an element of psychological dissociation. I spoke with people who decided to leave California completely. One woman, a survivor of 2015's Valley Fire, told me she was planning a move to Oregon. "We lost our home, we rebuilt ten years ago, and all of these fires now, it's like a constant terror, and I just can't live here anymore."

Lizzie Johnson, a reporter for the *San Francisco Chronicle*, wrote a book entirely filled with stories from just her first two seasons covering the fire beat. What she saw was cycle after cycle of compounding tragedies.

“You [started] to wonder how long you can write about things compellingly until people just start to get empathy fatigue and stop caring,” Johnson told me in 2018. “Sometimes I feel this sense of hopelessness, where I feel like my words are so limited, because all I want is for people to care and to understand what’s happening.”

What happened in California offered a glimpse of a horrific future. Each new megafire brought a sense that there would never be another one this bad in our lifetimes. And then the next one was worse. A lot worse.

“I feel like people kind of need to be shaken from their stupor,” Johnson told me in 2018, “and realize that climate change isn’t this abstract problem that won’t impact them. These wildfires are one of the first very visceral, humanistic impacts of climate change that people can identify with, in a way that they can’t with melting ice caps or dying polar bears. These are little children, and parents, and seasoned firefighters dying.

“This idea that the problem seems so big that no one really thinks that anything that they can do can have that much of a difference—that’s wrong. The only way we can really change this trajectory we’re on is if people start caring and they start speaking up about it and pressuring their legislators to adhere to stricter policy.”

* * *

In November, right before the presidential election, came the death knell for the system. A freak hurricane made landfall near Washington, DC, during an emergency session of Congress, and served as a poetic and symbolic capstone on the worst hurricane season the world had ever known.

The signal was as clear as could ever be imagined: our current system was not built to withstand the new reality we were creating. Everything, it seemed, was breaking at once.

In spite of all the chaos—or, more likely, because of it—an upwelling of human emotion and inspired acts of defiance centered on the future. There was a tangible period of public grieving, of letting go of hopes and dreams, of preparing to abandon old ways of doing things. A new, uncomfortable, necessary path was emerging. People finally began speaking the truth we already knew: climate change impacts were beginning to unravel, reshuffle, and realign the world.

We were finally ready for transformational change. Once growth for growth's sake was seriously questioned, an opening for a new system materialized. A shift to a new method of valuation began—not on expected production or consumption but on the ability to contribute to sustaining life and civilization.

"Prepare for catastrophic success," Titley told me in 2014. "I mean, look at how quickly the gay rights conversation changed in this country. Ten years ago, it was at best a fringe thing. Nowadays, it's much more accepted. When we get focused, we can do amazing things. Unfortunately, it's usually at the last minute, usually under duress."

* * *

Success on climate change, where it can exist, will look like democracy. To build a sustainable and just world for the next century, everyone will have to participate—especially those who have been excluded from the political process for far too long. An inclusive society is a just society, in which we all listen to one another with genuine care.

Asking how the world will have to change to accommodate a billion climate refugees by the end of the century is the wrong question. Instead, we should be thinking about how the world will have to change so no one will ever need to abandon their home in the first place.

We owe it to one another, and to all species of life, to stabilize the planet's natural systems, so that people we've never met and creatures we've never seen can grow up healthy and happy. We're doing this for all of us.

In the 2020s, all this happened much, much quicker than anyone thought was possible. As the general strikes escalated, what began as a few million students and young people following the example of Greta Thunberg blossomed into a weekly mass rally in almost every major city in the world. By the end of 2020, 300 million people took to the streets on a regular basis—4 percent of everyone on Earth—an outpouring of desire that reshaped the trajectory of human civilization. In Europe, the demonstrations routinely surpassed 10 percent of the population, effectively making normal life impossible—far surpassing Erica Chenoweth's 3.5 percent rule. Town hall meetings and citizens' assemblies throughout the world plotted new

paths, neighborhood by neighborhood, city by city, state by state, and nation by nation.

Varshini Prakash's vision for the Sunrise Movement became a reality. "Because we built such an incredible coalition of people, of youth, of environmental justice and climate justice groups," she told me, "we've amassed a huge number of ordinary citizens and Americans who see themselves reflected in the Green New Deal and see the way in which it can directly impact and benefit their lives."

After we ushered in a new generation of politicians in 2020, they emerged to fight for people first, not for money or power. Spurred on by an engaged citizenry fed up with the country's leadership, this emboldened group of new politicians countered the global rise of authoritarian strongmen concerned only with their own power and started to do the hard work required to deal with the climate emergency.

"For the first time," Prakash told me, "we had a window of opportunity to pass the kind of policies that we need[ed] to pass to stop the climate crisis. A chorus of people all around the world called on their own nations to protect our future."

When I spoke to her before the election, she had told me, as a part of her vision for the future, "I'm imagining right after the election, November 2020, there's a fire season that's continuing to happen and quite literally lines of people are bringing the ashes of burned-down houses and trees and their homes, and dropping them on the doorstep[s] of our politicians by the hundreds. It became a thing that's not about activists. There's no ability to call the people who are taking action 'activists' because there's so many of them that they just become people calling for something that's going to save our society. That's the level of scale that I want to reach."

The emergence of a new political consciousness dovetailed with a growing sentiment in popular culture, as celebrities and artists turned their creative energy and influence toward raising awareness about the climate emergency and galvanizing public support for radical change. Perhaps the most important development was the rise of a popular reality TV show in the United States that asked a simple question: What are we going to do? It was the question everyone had on their minds, of course, and the show's producers created an ingenious way of turning everyone's shared existential crisis into a path forward. By randomly assembling one hundred people—a public citizens' assembly—the show's cast resembled America. Together,

they built up a vision of what they wanted the world to look like in 2050, then worked backward. With the help of dozens of experts, they settled on a pathway for change that the US could implement right away. They built a hopeful vision of a future that works for everyone, along with a plan to make it happen that everyone could support. Their plan was much more radical than most politicians were willing to admit.

They announced a goal for the country's energy use to be 100 percent carbon-free by the end of the decade. They called for public ownership of all utilities and an immediate end to all fossil fuel subsidies.

They asked their representatives to invest in rural regions and establish a fully funded national institute to study regenerative agriculture. They also asked their representatives to sign into law a national car buyback program combined with comprehensive city redesigns that aimed to completely eliminate cars by 2040.

In addition to a four-day workweek, they demanded universal guarantees for housing, health care, and employment—all of which would help transform the current economic system into a completely circular economy by 2050.

Finally, they demanded recognition of Indigenous sovereignty and the establishment of a permanent fund for climate reparations.

To pay for these radical ideas, they called for a wealth tax on billionaires. In the US, the plan went even further than Bernie Sanders's Green New Deal, which was by far the most ambitious plan ever proposed by a presidential candidate. And best of all, economists of all political leanings agreed the plan would pay for itself by 2030.

In January 2021, a new president was sworn in with climate change as a day-one priority. By the end of the first week, Congress got to work on passing most of the ideas the citizens' assembly had come up with. A new era of history had begun.

## 2022–2023: IMAGINING A NEW SOCIAL COMPACT FOR A RAPIDLY CHANGING WORLD

To achieve our dreams, we needed democracy to work better.

In the United States, a series of structural changes in 2021 helped pave the way for the rapid transformation in all aspects of US society. Congress

banned all fossil fuel industry advertisements, expanded the Supreme Court and instituted term limits on it, and abolished the filibuster in the Senate.

Washington, DC, finally became a state, and US-controlled island territories were also granted statehood, in recognition of the existential threat climate change posed to them.

Puerto Rico became the fifty-second state, the Virgin Islands, the fifty-third. Soon thereafter, Guam and Northern Mariana Islands were declared the fifty-fourth and fifty-fifth states of the Union, followed by American Samoa.

At a ceremony unveiling the new US flag, with fifty-six stars, the new US president said it represented the unity of the American people and our striving for one goal: our shared survival and hope for a brighter future for everyone.

Perhaps most important, recognizing the duty to the tribal nations that far predated the country allowed for a new chapter of dialogue in an attempt to rebuild trust and share the lands we occupied.

Kelsey Leonard, an enrolled citizen of the Shinnecock Indian Nation and tribal co-lead on the Mid-Atlantic Regional Planning Body of the US National Ocean Council, told me that she believed that this essential step would change everything, not only for Indigenous nations like hers but also as a lasting symbol of what it means to work toward a consensual relationship between one another and with the planet we all call home. “The principles of right to self-determination and free prior and informed consent are enshrined within the United Nations Declaration on the Rights of Indigenous Peoples,” she told me. “Decolonization means much more than just asking permission to build a piece of infrastructure once you’re already halfway through the planning process, or making a land acknowledgment. It means stepping aside in real and measurable ways.”

The traditional lands of the Shinnecock Indian Nation are on Long Island, where in recent years developers have built wind turbines despite a minimum of direct dialogue with the tribe. It’s the kind of process that, over time, destroys relationships.

“From my own experience at Shinnecock,” Leonard told me, “we’ve had to deal with quite a lot of wind energy proliferation and the lack of consultation that goes into that.” In this case, Leonard said, renewable energy development replicates patterns of colonialism. “The ways current wind proliferation, wind permitting, occurs sits outside of the control of

Indigenous nations in the US. It's been very much a process that's been controlled and dominated by the state and the federal government[s]. They jockey between the line that is state waters and federal waters and out to the Exclusive Economic Zone. All of that happens under the auspices that Indigenous waters don't exist. They just ignore the fact that there was never any ceding of water rights to the states or the federal government, and then the permitting processes occur without our consent."

Leonard knows that the prevailing attitude toward renewable energy development has heightened urgency in the middle of our climate crisis. Asking developers to include her people from the very beginning of the process, though, is an important step toward bringing about a more just and sustainable world. "I don't think tribes are anti-wind. It's how the process is currently conducted, in the sense that the placement of turbines doesn't actually consider our fishing territories or canoe routes, any aspect of our political or cultural existence that has to do with the area that's being now occupied by turbines."

These are the kinds of disputes that don't happen in a culture built on care and consent. As the world entered an era of radical change, we learned how to simultaneously do the slow work of building relationships with one another.

* * *

Imagine it. What would it be like if every family, every neighborhood, every farm, every city, every nation on Earth were all working toward a better world?

In Puerto Rico, the change has been revolutionary. Hurricane Maria was the worst disaster in Puerto Rico's history—a superstorm that plunged the island into a humanitarian crisis. In 2022, five years after the storm, a transformational change was slowly realized. Statehood—a controversial step—has allowed Puerto Ricans a voice in their own future, and resources to rebuild in a way that started to attract members of the diaspora back home.

Marisol LeBrón, a professor at the University of Texas at Austin, told me that both political and economic sovereignty were necessary for Puerto Rico to truly flourish. "The issue throughout the Caribbean and Latin

America is that political sovereignty without economic sovereignty just creates new forms of imperial domination," she said. "Without economic sovereignty, political sovereignty is essentially meaningless. A real decolonization would mean that Puerto Rico would be given reparations for over a century of colonization by the US and for centuries of colonization by Spain. Also, reparations for the centuries of extraction and exploitation that have happened. Without that, Puerto Rico will be completely unable to start to rebuild in a way that promotes equality and justice for the people living there.

"One of the things you saw a lot after the storm were these kind of small-scale collectives coming up that sidestepped the state completely. The people providing for the people. And addressing the needs of the people. Those efforts have been happening for the past ten years, and are just gaining a lot more traction as people see the situation and the state, the way it was, was not going to provide for them or keep them safe in the face of these ongoing crises."

Debt forgiveness, as well as an overdue plan to fund the rebuilding of homes and infrastructure destroyed during Maria, made it possible for Puerto Ricans to imagine a truly hopeful future, one that finally shook free its colonial past.

* * *

Meanwhile, in 2023, world leaders gathered again in Europe for a global reassessment of progress since the Paris Agreement was signed. The conference was filled with tension and open conflict about the paths societies were following amid rapid change.

Despite apparent progress in the US, the world needed to strengthen the commitments made in Paris, which had been woefully insufficient. Each country agreed to an emergency review before a new global climate summit in 2025.

Toward the end of the two weeks of sessions, the US delegation splintered. The fossil fuel industry still had a lot of power, though it was rapidly dwindling, as its actions began to be widely seen as immoral and even illegal. For China, the Belt and Road Initiative—its effort at spreading power and influence across most of the world—became a key negotiating

point. The African Union and European Union held marathon talks about reparations for colonialism.

It's true that the US had come a long way since the late 2010s, but other countries were rightly skeptical. At last, a breakthrough: the Marshall Islands helped to broker international commitment to a Global Marshall Plan, directed by developing countries and funded proportionally by every nation in the world on the basis of historical greenhouse gas emissions, a multitrillion-dollar, twenty-five-year effort toward a rebalancing of humanity.

The Global Marshall Plan was the most ambitious initiative humanity had ever undertaken. Its main goal was not economic stability or even emissions reductions, but a quarter-century effort to gift a thriving planet to future generations. It was intentionally vague—the full text of the agreement was only eight pages long—but its power was in setting up a system of binding dialogues within and between every country on Earth. At the community level in every city of every size worldwide, discussions would take place in an attempt to create locally determined paths forward that were consistent with the 1.5-degree Celsius goal set in Paris. Finally, we were able to decide our future by ourselves, with one another.

As the plans started rolling in, it was clear that what was happening was far beyond even the dreams of the Marshallese organizers. Trillions of dollars were spent on renewable energy and agricultural research, tens of thousands of miles of high-speed rail lines were constructed, and seeds were distributed to backyard farmers and subsistence agriculturalists. There was also support for teachers, doctors, and artists. People were ready for revolutionary change.

## 2024–2029: THE GREEN NEW DEAL GOES GLOBAL

By the mid-2020s, a global movement took hold that centered around the difficult necessity of reimagining our relationships to one another and the world. A series of legal victories brought the authority that was necessary to reshape the playing field, and fast.

How quickly could the old rules change? Could an international court mandate intergenerational equity? Could there be criminal charges filed

against the CEOs of fossil fuel companies, holding them legally responsible for crimes against humanity?

In the waning days of 2019, a breakthrough changed the playing field overnight: the Netherlands Supreme Court ruled that Urgenda, a Dutch environmental group, was right to claim that a failure to address climate change violated human rights. Around the world, from Peru to Canada, dozens of related cases opened different legal pathways to ambitious climate action. By the late 2020s, the verdicts put a positive mandate on countries to revolutionize their economies and deliver a real guarantee of a habitable planet.

*Juliana v. United States*, in particular, had a plot suitable for a Disney movie: an eclectic group of twenty-one kids (and their lawyers) filed a lawsuit in 2015 arguing that the federal government's lax climate policies had violated their constitutional rights to life and liberty and should adopt a science-based plan to reduce emissions.

At the heart of this lawsuit was the principle of intergenerational equity. In essence, the twenty-one plaintiffs in *Juliana* said that the federal government's refusal to take serious action against climate change unlawfully puts the well-being of current generations ahead of future generations. It's a horrific injustice that children have to grow up wondering whether the planet they live on is going to quickly become incapable of supporting life in all its beautiful forms.

In 2020, however, *Juliana v. United States* was dismissed by the Ninth Circuit Court of Appeals. In her strongly worded dissent, US District Court Judge Josephine Staton wrote: "In these proceedings, the government accepts as fact that the United States has reached a tipping point crying out for a concerted response—yet presses ahead toward calamity. It is as if an asteroid were barreling toward Earth and the government decided to shut down our only defenses. Seeking to quash this suit, the government bluntly insists that it has the absolute and unreviewable power to destroy the Nation . . . considering plaintiffs seek no less than to forestall the Nation's demise, even a partial and temporary reprieve would constitute meaningful redress. Such relief, much like the desegregation orders and statewide prison injunctions the Supreme Court has sanctioned, would vindicate plaintiffs' constitutional rights."

In 2024, the youth refiled their case with a slightly different legal argument: They wanted to make burning fossil fuels against the law in the

United States, a violation of the youth's Constitutional rights, as of January 1, 2030. Doing so would enshrine the past four years of rapid progress toward a Green New Deal into the most primary legal document governing the country. Against all odds, the youth won. In the Supreme Court's decision, they cited the Urgenda case, forever linking climate action and civil rights in American law. A period of rapid decarbonization began at once across the entire US economy.

Michael Burger, executive director of the Sabin Center for Climate Change Law at Columbia University, predicted something like this could happen when I spoke with him in 2019. "The idea that the International Criminal Court is going to step in seems kind of far-fetched, obviously. The idea that individuals will be held personally, criminally liable for corporate actions over the scope of . . . industrial and post-industrial human civilization is, it sounds, unlikely. But if there are discrete acts, maybe there's something there. Like, if it has become a crime to emit greenhouse gases. The thing about criminal prosecutions is that the crime has to be written out and clearly articulated. So you'd have to create those crimes."

More likely, he said, is the United States would establish a new department in the executive branch whose job it is to advocate explicitly on behalf of future generations. That's exactly the kind of thing the original Juliana case called for, but they got even more than that. The Supreme Court's 2024 ruling unleashed a wave of legislation and executive action that solidified America's responsibility to repair the climate damage it had caused worldwide for centuries.

"Right now, we're at a point in time where some of these cases, like . . . the Urgenda case in the Netherlands, and potentially some other cases, are establishing that these domestic constitutions or regional human rights regimes protect individuals from climate change and obligate governments to do more than what they're doing. So that could be running to courts all around the world and saying, 'Your failure to have a climate plan in place, adequate to reach the 1.5-degree target, is a violation of our constitutional right to life.' And courts [are] saying, 'Yes, that's right. You have to do more.' So that seems like a good possibility to me."

As court systems around the world began to swing to the side of youth and future generations, all bets were off in terms of how rapidly climate action could begin to proceed.

In India, animals, birds, and rivers were granted legal personhood status, and a court ruling found that climate change harms there must be limited to protect them. In the Cook Islands, courts ruled that the Pacific Ocean similarly deserved protection equal to humans. Finally, the Earth had legal protection that justified its irreplaceable value.

* * *

By 2030, we may find it difficult to remember what life in the 2010s was like.

The period from 2020 to 2030 will be both a truly terrifying and a golden era in humanity. Nothing like it has ever occurred before. With any luck, nothing like it will ever be necessary again. We will come together—some people willingly, some because they will run out of options or excuses—to make the best decisions in the best interests of the planet. We will realize that by showing people, who are desperate for solutions, what is possible, what we can do, we might ensure that future generations are handed a world that isn't on the verge of going to hell.

In the US, if we do what we need to, net emissions in 2030 might be just 10 percent of what they were in 2020. Globally, emissions might fall by 40 percent. We will emerge from the liminal space of climate catastrophe into a still-uncertain world, but one that is bending back toward life.

# 2030–2040:
# Radical Stewardship

*We live in capitalism. Its power seems inescapable. But then, so did the divine right of kings. Any human power can be resisted and changed by human beings. . . . The name of our beautiful reward isn't profit. Its name is freedom.*

—Ursula K. Le Guin

**D**esigning and executing a plan to radically reduce emissions is where most discourse on climate action stops. But it is really just the beginning.

We need more than just renewable energy. We need more than just tearing down the fossil fuel industry and capitalism. We need to develop a whole new type of human society.

If the kind of thing we're most focused on is replacing gas-powered cars with battery-powered ones, we'll have missed the whole point, and we'll be well on our way toward re-creating the same system that got us into this mess in the first place. In this moment of transformational change, we need to start by asking foundational questions, like, What is a good life, and how can it be possible for everyone? We know what needs to change is almost everything that makes up society as it is today: the systems of buildings, transportation, and energy that make up our cities and towns, but also our democracy, our justice system, and the way we value one another and ourselves.

I have no idea what this will look like, but I know how to find out: it's as easy as listening. That's how a new politics, a new way of relating to one another, will come into being. That's the difference between renewable *energy* and a renewable *economy*.

The 2030s—the dawn of the era after we've reached peak global emissions—will be just as pivotal for the fate of civilization as today's efforts are to radically and urgently change course. Long before the tar

# 2040–2050:
# New Technologies and New Spiritualities

*All that you touch you Change.*
*All that you Change changes you.*
*The only lasting truth is Change.*

—Octavia E. Butler, *Parable of the Sower*

**A** trope of sci-fi movies these days, from *Snowpiercer* to *Geostorm*, is that our failure to tackle climate change will eventually force us to deploy an arsenal of unproven technologies to cool the planet. Think sun-deflecting space mirrors or chemically altered clouds. And because these are sci-fi movies, it's assumed that these grand experiments in geoengineering will go horribly wrong.

But as emerging studies have continued to suggest, the fiction is much closer to reality than we previously thought.

When most people hear "climate change," they think of greenhouse gases overheating the planet. But there's another product of industry changing the climate that has received scant public attention: aerosols. Aerosols are microscopic particles of pollution that, on balance, reflect sunlight back into space and help cool the planet down, providing a crucial counterweight to greenhouse-powered global warming.

An effort to co-opt this natural cooling ability of aerosols has long been considered a potential last-ditch effort to slow down global warming. The promise of planet-cooling aerosol technology has also been touted by techno-optimists, Silicon Valley types, and politicians who aren't keen on the government doing anything to curb emissions. "Geoengineering holds forth the promise of addressing global warming concerns for just a few billion dollars a year," wrote Newt Gingrich in an attack on proposed cap-and-trade legislation back in 2008.

But there's a catch.

This surplus of aerosols is a huge problem. At high concentrations, these tiny particles are one of the deadliest substances in existence, burrowing deep into our bodies, where they can damage hearts and lungs.

Air pollution from burning coal, driving cars, and controlled fires to clear land, as well as from other human-related activities, is the fourth-leading cause of death worldwide. It kills about 5.5 million people each year. Nearly everybody is at risk, with roughly 92 percent of us living in places with dangerously polluted air. That alone makes reducing air pollution a necessary goal.

Natural aerosols—bits of dust, salt, smoke, and organic compounds emitted from plants—are an integral part of our planet's atmosphere. Without these types of aerosols, clouds would likely be unable to make rain. But, as is the case with greenhouse gases, human activity has produced too many aerosols in the form of excess air pollution. The bulk of the human-emitted aerosols linger in the lower atmosphere, which worsens their impact on our health. The result is a devil's bargain: we need aerosols for normal weather and to help moderate rising temperatures, but they are also killing us.

We might be locked in this deadly embrace for longer than we'd like. The cooling effect of aerosols is so large that it has masked as much as half of the warming effect from greenhouse gases. There's no way around it: aerosols can't be wiped out without dramatic consequences. Take them away and temperatures would soar almost overnight. In the 2030s, after nearly two decades of radical emissions reductions around the world and the cleansing of our skies of air pollution, the effect of the lost aerosols continued to drive global temperatures upward, perhaps to dangerous levels.

People have been aware of the influence of aerosols for centuries. In the 1200s, Londoners complained about the clouds of coal smoke. In 1783, Benjamin Franklin observed that tiny particles from volcanic eruptions tended to chill the weather. Throughout the late 1800s and early 1900s, dense smoke from coal blocked out daylight in Chicago, Pittsburgh, Saint Louis, and scores of other cities. In 1991, Mount Pinatubo in the Philippines erupted, providing a natural laboratory for studying aerosols' impact. The resulting research gave scientists solid evidence that particles in the atmosphere tended to cool the planet, essentially proving Benjamin Franklin's hunch two centuries earlier. During the first part of the twenty-first century, scientists continued to puzzle over exactly how aerosols from

tailpipes and smokestacks alter the weather, in part because the particles are incredibly difficult to study. To research them, scientists sought out remote corners of the globe far from industrial pollution, like the seas around Antarctica.

Aerosols are much bigger than air molecules, so they weigh more and tend to fall out of the sky within days or weeks after they're released. There's also a ten-thousand-fold range in their sizes and a wide variety of sources, making their behavior relatively unpredictable. Black carbon aerosols from forest fires, for example, tend to suppress cloud formation by warming the air, which makes tiny water droplets evaporate. Similarly, sulfate aerosols from burning coal can make clouds grow bigger and rainstorms stronger. Thunderstorms in China vary on a weekly cycle, right in line with local factory schedules.

What's clear is that, on balance, aerosols are cooling us off. If we magically transformed the global economy overnight, and air pollution fell to near zero, we would experience an immediate rise in global temperatures of between 0.5 and 1.1 degrees Celsius. (For reference: as of 2020, the climate has warmed about 1.2 degrees Celsius since the start of the Industrial Revolution in the nineteenth century.) The warming would be concentrated over the major cities of the Northern Hemisphere, close to where most aerosols are emitted. In the hardest hit parts of highly urbanized East Asia, for example, the complete removal of aerosols would likely have a bigger effect than all other sources of climate change combined. Temperatures in the Arctic could jump as much as 4 degrees Celsius (7.2 degrees F)—a catastrophe that would shove the region further toward a permanently ice-free state. Research in 2019 showed that this effect might last only five or ten years, but that might be enough to push already fractured glaciers beyond a tipping point, with disastrous consequences.

So what do we do?

* * *

Previous attempts at removing harmful aerosols have proved largely successful, especially in the United States and Europe. The US Clean Air Act, one of the most important fruits of the 1970s environmental movement, led to a sharp and nearly immediate fall in air pollution, likely

saving millions of lives. “This is known territory, at least compared to massively reducing CO2 emissions,” Bjørn Samset, research director at Norway’s Center for International Climate Research, told me. Pumping artificial aerosols into the upper atmosphere should also work, in theory. Balloons and airplanes could spray benign aerosols like calcium carbonate (essentially crushed limestone), which would be carried throughout the upper atmosphere by the wind. One recent study estimated it would take 6,700 business jet flights per day—outfitted with spraying equipment—to keep enough aerosols in the stratosphere to cool the climate by 1 degree Celsius (1.8 degrees F). The cost: $20 billion per year, more or less in line with Gingrich’s estimate from a decade ago, adjusting for inflation.

But nothing of this scale has ever been tried. In fact, the evidence is that messing with aerosols has already led to past periods of rapid warming. After the Clean Air Act was passed, global temperatures began climbing in the late 1970s, ending a relatively stable thirty-year period. A similar pattern has now begun in Asia. In recent decades, the rapid economic rise of coal-powered China and India, coupled with the resulting aerosol emissions, has blackened skies in Shanghai, Delhi, and other megacities. This almost certainly has contributed to a slowdown in the rate of warming, globally. In the 2010s, China responded to public outrage over the country’s air-pocalypse by putting in place pollution controls. And there’s initial evidence that they’re beginning to work. India, meanwhile, has taken the dubious title of having the worst air quality in the world, and outrage is starting to grow there too.

Bjørn Samset thinks the immediate health benefits of curbing air pollution mean that China will likely stick to these efforts, in spite of the potential warming effects. “It’s very plausible that Asian aerosol cleanup—which saves lives directly by reducing air pollution—can get prioritized over strong greenhouse gas cuts,” he explained. What was once the realm of scary science fiction and conspiracy theory is now entering the mainstream of atmospheric study—only those now conducting the experiments are clear about the risks.

“Geoengineering is like taking painkillers,” said Frank Keutsch, a Harvard chemist who’s working on the problem. “When things are really bad, painkillers can help but they don’t address the cause of a disease and they may [do] more harm than good. We really don’t know the effects of geoengineering, but that is why we’re doing this research.”

And even if geoengineering with aerosols works to offset warming? That, too, could have disastrous side effects.

Samset told me that embarking on a planetary-scale aerosol geoengineering project would produce "a wide range of unintended regional consequences." One of the biggest risks, according to a study published in *Nature Ecology and Evolution*, is that the cooling would work too well, producing shifts in ecosystems at "unprecedented speeds"—the kind of scenario that was dramatized in the movie *Snowpiercer*. That could be a fatal shock to animals and plants already stressed by decades of warming.

"I could imagine global conflicts breaking out over these types of actions," Susanne Bauer of the NASA Goddard Institute for Space Studies, told me. "On the other hand, I do believe geoengineering must be studied, just to be aware and educated about the possibilities."

## FROM CRISIS TO CHANGE

The thirty years from 2020 to 2050 will be among the most transformative decades in all of human history. Collapsing ice sheets, the aerosol crisis, and rising sea levels will force more people to leave their homes than at any other point in human history. In some places, that means conflict is inevitable.

A study from researchers at the University of California at Berkeley found that higher temperatures and shifting patterns of extreme weather can cause a rise in all types of violence, from domestic abuse to civil wars. In extreme cases, it could cause countries to cease functioning and collapse altogether.

This ominous reality of climate change is far from fated, however. A rapidly changing environment just makes conflict more likely, not inevitable. People, ultimately, are still in control. Our choices determine whether or not these conflicts will happen. In a world where we've rapidly decided to embark on constructing an ecological society, we'll have developed countless tools of conflict avoidance as part of our climate change adaptation strategies.

Still, there will be those who choose to live outside the mainstream society who may pose an existential threat to the rest of us. Some groups and a few rogue countries will try to prevent the rest of the world's

transition toward ecological and social justice. They will do this either because of the lingering influence from the dwindling fossil fuel industry, or because of a fascist ideological response to climate change that puts human rights at risk, or out of desperation.

Mary Annaïse Heglar, a climate essayist and advocate for intersectional approaches to racial and environmental justice, is inspired particularly by Octavia Butler's *Parable of the Sower* for an example of how things could go very badly. In the book, Butler describes fire-obsessed cults that spring up in a post-rapid-climate-change world, craving some sense amid the destruction and chaos they see all around them. Heglar thinks that could be just the beginning.

"The future I see is really ugly unless something very, very drastic changes," Heglar told me. "It's a world where people find many, many different ways, very creative ways, to be cruel to one another. Unpredictability brings out people's cruelty if you're not careful. And most people are not careful."

Heglar specifically thinks of the racial massacre in East Saint Louis, Illinois, in 1917 as an example of the kind of violence that might emerge if the world is not careful. Angry white mobs murdered dozens of Black people after they were hired in place of striking workers at factories during World War I. If lifesaving technology is not distributed fairly, or if governments lean too heavily on austerity along racial lines, or if climate disasters fragment already vulnerable populations, the result could be truly ugly.

"So many things that we think are impossible today could be completely normal in twenty years," Heglar told me. "I hear people saying now that 'when it gets really bad, I'll just move to New Zealand or I'll move to Sweden where climate change impact is not going to be that drastic.' But it's not going to be cute there. First of all, it's going to be mostly the one percent living there. So if you think your regular ass is gonna be able to buy land in New Zealand, good luck."

An escapist attitude is probably the most dangerous reaction to climate change today. It drives to the heart of how the problem of climate change came into being in the first place: by imagining ourselves as individuals who somehow exist outside the context of an interconnected, living ecosystem on a planet where all of our actions deeply affect one another, we fail to see each other's humanity and right to simply exist. It's the same

attitude that drives the richest men in the world today to create their own private space agencies. Those who are already being affected by the climate emergency can't and won't simply be left to fend for themselves while the privileged few plot their escape plans—to higher ground in their neighborhood, to inland mountain refuges, to Mars.

Until we build a world that works for everyone, we'll continue to have people whose survival is systematically erased by those in power. That's the dystopia for the rich and powerful: a world where the rest of us finally realize the power we had all along to fight for a justice-focused society.

It will take active, conscious effort to defuse the tensions sure to arise in a warming world. Overcoming a coordinated effort by the fossil fuel industry to save itself is not going to be easy, but we know it's coming. That effort has been going on since the fossil fuel industry began, and it won't just go away in the 2040s, even amid two decades of radical and hopeful changes. As always, our best hope will remain that we can prepare along the way to increase the chances of a peaceful transition to a fossil-free world.

We know that the weather in the 2040s will be worse than it is today. A major, sudden change, like a collapsing ice sheet or a quick rise in global temperatures after eliminating aerosols, would make the weather even more destructive than current predictions, even if we are able to radically reduce greenhouse gas emissions. What we can control, of course, is how we decide to respond to the worsening weather.

Since my conversation years ago with Rear Admiral Titley, I've repeated his idea of "catastrophic success" over and over to myself when I think things can't get any worse, and I've let it shape my view of how the world could quickly change beyond our wildest imaginations—for the better. Titley sees the warming world both as a scientist (he's a meteorologist, by training) and as a former military officer. He understands that the potential for a massive increase in refugees is a heartbreaking and almost inevitable looming humanitarian crisis due to the science of the escalating severity of droughts, floods, and severe weather we've already seen in recent decades and the historical tendency for leaders to close borders during times of crisis. A worsening of this trend could make the world practically ungovernable in our lifetimes.

The US military has been among the first large-scale entities to recognize this. That kind of makes sense if you consider their mission of

ensuring US safety and prosperity continues for as long as possible: without planetary stability, there is no US stability. That's part of why US military strategists at the Pentagon have begun calling climate change a "threat multiplier."

When Titley talks about migration, though, even he struggles to put the stakes in context. In the 2040s, if global sea levels rise by three feet and droughts, fires, heat waves, and floods continue to worsen, we could see around 250 million people forced from their homes. That's about four times as many people as are currently displaced, and about fifty times as many as were displaced during the Syrian Civil War. In short, it would challenge our understanding of nationality, borders, and politics as usual.

"Post–World War II," Titley told me, "tens of millions of people within Europe were on forced migration in the 1940s. We kind of gloss over that part of history. I mean, Europe was really bad after World War II. It's part of what got the Marshall Plan. I think it really kind of scared us that, hey, this whole place is just collapsing, basically, and something had to be done."

An uncontrolled, unanticipated climate-related migration crisis could be even worse than the refugee crisis after World War II, which, despite its horrors, displaced less than one percent of the world's population. Climate change could displace three times that amount just in the next two or three decades. Although displacement due to extreme weather is already becoming increasingly common, the proximate cause of displacement and migration is usually fleeing violent conflict. How do we anticipate a world that could quickly fracture, and urgently work to reduce the risk of violent conflict before it occurs?

A crisis like this will require proactive harm reduction on a civilizational scale. We will need to establish policies that encourage, rather than restrict, freedom of movement. And we must establish robust social safety nets so that families are less likely to abandon their homes in search of a place where they can simply live. Also, even before we reach zero emissions globally, we will have to recognize the need to take aggressive actions to reduce the level of carbon dioxide in the atmosphere. All of this will remain just as urgent in the 2040s as in 2020.

"I'm probably wrong," said Titley, "but I'm actually more optimistic that we are going to do real things now than I have been for a long, long time. I think there's actual legitimate cause for optimism."

Specifically, Titley pointed to the steady shift away from outright denial among rank-and-file members of the Republican Party as evidence that attitudes can shift toward action, no matter how meager. And once that facade of climate denial breaks, an avalanche of action could soon follow. "We may be much closer to catastrophic success right now. Things can change, and not always for the worse. They can change for the better. It can happen very, very quickly."

## 2040–2042: SHAPING THE FUTURE

By the 2040s, we achieved a carbon-free society in the United States, Europe, and many other places throughout the world. We began to draw carbon back out of the atmosphere in huge quantities in the oceans, soils, grasslands, and forests. We turned the corner toward an ecological society, because we prioritized justice and the inherent dignity of every living being on the planet. A revolution in our mindset and our relationship with the Earth allowed us to recognize that we all have value—that everyone and every species deserves the right to exist.

After a three-decade struggle, we realized that we deserve a beautiful, pleasurable, and justice-centered world, and we started to liberate one another and ourselves. To paraphrase author and women's rights activist adrienne maree brown, we shaped the future we longed for and had not yet experienced.

We did this because our world was dying. The thirty years between 2020 and 2050 was a period of shared grief and loss for so many of us, but it inspired us to meet these hardships with courage and hope and imagination, because catastrophic setbacks became the norm. Together we started the hard work of building a new world and continued to do it because we had to—for Indigenous folks after centuries of erasure and oppression, for Pacific Islanders fighting to protect their islands from sinking forever beneath the waves, for the very basic idea that there was no future worth fighting for that was not rooted in justice.

Farhana Sultana, a political ecologist whose work focuses on water rights, told me that despite her native Bangladesh being written off as a catastrophe in the making during the 2010s, the mood in her home country

remained “stubbornly optimistic” because “we’ve had no other choice but to be so to survive.”

*Stubbornly optimistic.* That pervasive attitude allowed us to endure the worst effects of climate change and continued well into the 2040s, when technology and innovation started to open doors that were previously shut. How we deployed these technologies—and determined who benefited from them—decided our fate as a civilization.

A techno-fix climate future would be as equally oppressive as today’s capitalist utopia if it weren’t coupled with radical decolonization and proactive efforts to extend climate reparations to the billions of people who endured the harshest impacts of climate change. The mechanisms by which we’re able to ensure justice proved to be the most important “technological” revolutions of this century.

This—and our collective work over the past decades—was put to the test, after the Thwaites glacier partially collapsed in 2039. Its sudden loss caused sea levels to rise three feet in the span of a decade, faster than most scientists thought possible. Because of a quirk in the Earth’s gravity, sea levels rose highest on the East Coast, permanently putting parts of Miami, Charleston, Norfolk, Philadelphia, New York, and Boston underwater.

Since the 2020s, when the world finally took collective action against the looming crisis of climate change, we consistently and correctly chose the path of ecology and justice. The flooded cities were as prepared as they could have been. In the case of Miami, that meant a combination of adaptation and retreat. In time, life in Miami started to resemble life in other archipelagos, an interconnected and flourishing community that embraces its watery reality, like the Florida Keys.

At heart, the issue of climate change is about survival. Specifically, as this century unfolds, it’s about who gets to survive and who doesn’t. During these decades of radical change, every decision needed to be made as if it were life or death. Because it always was. That kind of wild, constant, existential, emotional labor would have been impossible for most people to manage if we hadn’t already spent decades actively working to develop new ways of caring for one another.

World leaders signed a global climate migration treaty in 2040, allotting proportional residence of refugees according to the historical emissions footprint of every country on Earth. By establishing a permanent visa program for the 100 million people directly affected by climate disasters,

the treaty effectively abolished national borders. Nearly one-quarter of these refugees found new homes in the United States.

In the early 2040s, a simultaneous breakthrough in desalinization technology and diplomacy in the Middle East set off a chain reaction of effort to defuse the migration crisis that had gripped the world since the partial collapse of the glaciers in Antarctica and the sudden surge in warming after we phased out aerosols.

We understood that capitalist consumerism propped up the oil-rich economies, and once they went away, the rest of the world agreed to support the former oil states in their transition to a circular economy. The former oil states were already well on their way to becoming leaders in manufacturing solar equipment, high-speed trains, and desalinization designs, but during an emergency global summit in Dubai, world leaders agreed on a plan to enhance cooperation on an aggressive carbon drawdown and began discussions to geoengineer the climate, a temporary endeavor that would be phased out gradually as carbon dioxide levels were drawn back below 350 parts per million. This approach proved consistent with a long-term stabilization of climate at levels that would no longer risk a large-scale breakdown in society.

This global effort for disaster preparedness and prevention extended the gains of a newly resilient circular economy in Europe and North America to the entire world. Though such efforts should have happened sooner, even at this late hour, the world came to an agreement: no matter who is negatively impacted by the effects of geoengineering, all countries acting in unison will ensure fairness. In one voice, international leaders declared that meeting everyone's basic needs is nonnegotiable. Together we reduced the reasons for conflict and at last built a society where everyone on Earth could flourish.

Though global sea levels continued to rise, it still remained within our power to prevent a wholesale collapse of the massive ice sheets in Greenland and Antarctica. With careful planning and dialogue between communities most likely to be affected by climate change, the world's governments were able to avoid further economic collapse. Between 2020 and 2050, we learned how to work with one another and for one another. We matured our democratic systems of governance to ensure our ability to make difficult decisions quickly. And we grew comfortable embracing

change, because we knew, each and every one of us, that we were building a better world.

Despite these challenges, the 2040s was a decade of regrowth—not of the extractive fossil fuel economy, of course, but of the plants, animals, ecosystems, and communities of people that have been stunted for so long by the status quo.

Once some form of geoengineering became inevitable, we established clear rules on who benefits from any geoengineering program. What would be the program's measures of success? If coastal property values were propped up because the ice sheets in Greenland and Antarctica slowed their collapse, would that boost to the global economy be fairly distributed to the farmers in Senegal or Paraguay whose crops would be destroyed because of an extreme weather event that likely wouldn't have happened without geoengineering? How would we measure these effects—and hold rogue profiteers to account?

At the same time, the slow lag of ocean heat storage, locked in from years of poor decisions, continued to escalate extreme weather events well into the 2040s, which threatened our radical transformation of society and put at dire risk millions of people living in small island states, in low-income neighborhoods, along riverbanks, and in farming regions around the world. To preserve the homelands of these millions, we ramped up our geoengineering capabilities, deciding, after another global-scale nonviolent wave of protest, that the patents to all carbon-free energy technologies should be made freely available to anyone.

* * *

Reducing emissions to zero is the best way to slow down climate change. We understood this in 2020 just as well as we did in 2045. The outstanding question was: What if after already greatly reducing our global emissions, the climate tipping points we previously set in motion are triggered anyway?

Technology is just the practical application of scientific knowledge—and that knowledge tells us that truly transformative solutions are the most practical way forward during an emergency like this. Because the techno-fixes that capitalism wanted us to devote public money to failed to keep our

planet safe, few believed such an approach would work in this decade either, as the effects of climate change continued to inflict injustices around the world. Sure, we continued to take full advantage of technological improvements to produce food, energy, water, and shelter, but we treated those technologies with caution, finally understanding that celebrating technology as a goal in and of itself was dangerously misguided.

A revolution in all aspects of society offered us the best chance to build a livable world in our lifetimes—far more effective than any particular piece of renewable energy technology or tree-planting initiative.

If the rapid changes of the 2020s and 2030s taught us anything, it was that social movements are the best "technology" we have to bring about rapid and far-reaching decarbonization in all aspects of society. By bringing a fairer, more justice-centered world into being and an economy that fundamentally prioritizes planetary health and equality, we achieved a "technological" breakthrough that no amount of twentieth-century research and development funding ever could have imagined.

By midcentury, the world was a vastly different place. Some places became uninhabitable, because drought, flooding, and intense heat created wild, inclement weather. Elsewhere, entire nations became carbon-free, and a wholesale transformation was under way to convert as much as one-third of the planet's arable land into trees and other perennial plants that could be grown for food and fuel and draw carbon out of the atmosphere as quickly as possible. But we still needed to resort to other, even bolder methods to stabilize the climate.

Even after the global revolution of the 2020s and 2030s put our society on a path toward a completely decarbonized and circular economy, we were faced with a lot of difficult choices. Creating a truly sustainable world required ingenuity, creativity, and patience as we embarked on a completely different approach for the living planet we were stewarding.

## 2043–2045: NEGATIVE EMISSIONS

By the 2040s, we not only ran an entirely carbon-free electric grid but also scaled up technologies designed to actually suck carbon dioxide out of the atmosphere on an enormous scale. By 2045, carbon dioxide levels were

approaching 500 parts per million, but we were on our way toward a return to the safe zone of planetary stability.

Our need to draw down carbon from the atmosphere was an expensive, but necessary, consequence of our delay in reducing emissions. Each part per million of carbon dioxide in the atmosphere amounts to about 2 billion tons of carbon. Extracting more than 100 parts per million from the sky—about as much as we've currently overshot safe levels—required an enormous feat: a civil engineering project dwarfing anything humans have ever attempted.

Extracting carbon from the atmosphere—essentially unburning all the fossil fuels that have ever been burned—carried with it an unfathomably huge economic and societal cost, potentially consuming between 10 and 50 percent of all global economic output by the end of the century. Most of the technologies involved plants. Photosynthesis is the cheapest, most effective, and most ubiquitous technology we know of to pull carbon out of the atmosphere: trees, tallgrass prairies, algae—the restoration of natural ecosystems. Soils are still, by far, the least understood part of the global carbon cycle, and it's difficult to get good estimates on how much more they can be coaxed into holding. But the idea of carbon farming, nurturing plants to store carbon in the soil by managing the ratio of fungi to bacteria or intercropping multiple perennial species or by dozens of other methods, was so promising that we poured money into it.

Carbon sequestration became the main livelihood for hundreds of millions of carbon farmers around the world. Governments paid citizens to produce food, but to do so in a way that reduced climate change at the same time.

In an effort to maintain a path forward for outdated forms of air travel, billionaires (the few that still existed) pushed for enormous investment in carbon-negative biofuels on a continent-size scale. Another idea was to flood vast swaths of the world's deserts, seed the ponds with genetically engineered algae, and let the plants grow as much as possible. Another controversial method, called methane oxidation, would have involved intentionally releasing huge amounts of carbon dioxide into the atmosphere through chemical reactions in an array of giant fans—but would remove virtually all anthropogenic methane in the process, which, pound-for-pound, has an eighty-four-times-greater warming effect than CO2.

Throughout the 2040s, however, one primary negative-emissions idea dominated the conversation: bioenergy carbon capture and storage (BECCS), which involves growing plants, burning them for fuel, and capturing the emissions. BECCS, if scaled up to its full potential, would require an enormous expansion of oil seed farms to such an extent that it might ultimately threaten the world's food supply.

At a 2045 summit in Paris, thirty years after the original Paris climate accords, these proposals were soundly rejected. A window emerged for what UCLA geoengineering researcher Holly Jean Buck has called "a radically utopian way of removing carbon from the atmosphere." Using seized assets of long-bankrupt fossil fuel industries, governments began to coordinate a large-scale effort at carbon capture and storage in huge oil fields, fracking wells, and abandoned coal mines. By concentrating and capturing streams of atmospheric carbon dioxide and converting them into geologically stable liquids and solids—basically fake oil and coal—we began to run time backward.

The psychology of carbon removal, of erasing the sins of previous generations, is profound. But the reality is that there is no easy solution to undoing the current state of the world. For at least the next few decades we will endure a planet that's growing dangerously hotter every year. Embracing that cruel truth—and not running from it—will allow us to best ensure not only survival but a good life for as many people as possible during this era of fundamental transition.

## 2046–2049: HUMANITARIAN GEOENGINEERING

Even as the world switched to net-negative carbon emissions, global temperatures were still dangerously high and would remain so for decades or even centuries without further action. We began to wonder: What would happen if carbon removal failed to reach the scale necessary to avert further ice sheet collapses? Could we modify the weather—intentionally—to suit our needs? Could we create a planetary thermostat and turn the heat down? The complicated ethics of geoengineering suddenly came into sharper focus.

In 2017, the Red Cross convened the first-ever conference on "humanitarian" geoengineering. Such a concept, I'm sure, seems laughably

naive to people who understand even the basics about the multi-millennial history of human power relations. Expecting that a planet-scale air conditioner could work, and could be fairly governed by all nations on Earth, is in bold defiance of our history with managing the proliferation of technology since the Stone Age.

The Red Cross's job, though, is to plan for emergencies. And, as evidence that our climate emergency disproportionately affects the people who have contributed to its causes the least, that's exactly what the Red Cross did in 2017. The ethical and responsible approach, they concluded, might be a limited-scale geoengineering effort that prioritizes the well-being of folks at the front lines. By the late 2040s, we had proved to ourselves that we were able to overcome existential challenges by working together, and so we decided to take on the prospect of cooling the planet.

The potential for deliberate large-scale intervention in the Earth's climate system has major implications in terms of impacts on the most vulnerable. Early engagement by the humanitarian community could have huge influence on how (and whether) geoengineering projects happen. Those who will suffer the worst outcomes need to be leading the discussions, especially given the plausibility of "predatory geoengineering," where reckless self-concerned actions may result in intentionally harmful consequences to others.

Pablo Suarez, who represented the Red Cross at the meeting back in 2017, spoke forcefully against the "potentially delusional assumptions of rationality" that have dominated discussions about geoengineering so far. The reason geoengineering is appealing, he said, is because it's a cheap, quick fix instead of doing the hard work of reorganizing society to prevent things like climate change from happening in the first place. "Climate change is the unwanted side effect of development," Suarez said. "No one likes to be the rat in someone else's laboratory."

Suarez posed the ethical decisions that a world on the brink of embarking on a geoengineering project would face: "If a hundred countries are better off, but Gabon is worse off, what happens to Gabon? Extreme weather will still happen, it will just be rearranged. Who will pay for humanitarian work in a geoengineered world?" There is no regulatory framework in place to help make these decisions. "We as humanitarians have a mandate to anticipate what could go wrong. And things could go wrong."

The risks of geoengineering were clear, even as early as 2017, when the Red Cross considered its long-term consequences. What was still up for debate, though, thirty years later, were its benefits. Spread in a thin layer in the upper atmosphere, sulfate aerosol particles induced a slight cooling effect, which limited the amount of heat and light the planet's surface received. Models that analyzed these scenarios continued to show that this would likely cause droughts and stunt the growth of plants. They also showed it would simultaneously reduce the energy available for extreme storms and reduce the intensity of rainstorms. It might also delay by centuries the terminal collapse of the rest of the glaciers in Greenland and Antarctica.

Geoengineering the planet, Suarez warned in 2017, would be embarking on a plan of planetary chemotherapy: injecting a harmful substance into the atmosphere to try to undo past wrongs with a full understanding that there may be serious side effects. "In extreme cases," said Suarez, "those side effects could kill the patient.

"Is that death different than the death caused by cancer? Maybe, maybe not. Is the suffering different? Maybe, maybe not. We know we are confronting difficult choices."

Still, this was one of many choices we had to face, despite our decades of hard work. What would happen if the global humanitarian community embarked on a limited-scale geoengineering project late in the 2040s? What would happen if people, thrust dangerously to the practical point of genocide, embarked on a plan to demand atmospheric justice?

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The worst-case scenario isn't necessarily that we'd start a geoengineering project but that we'd suddenly stop it.

An abruptly halted geoengineering project would have shock effects even worse than the relatively slower, but still disastrous, phase-out of aerosols. A sharp rise in temperatures would produce an overnight shift in weather patterns that might prove catastrophic for people and species already stressed by decades of dangerous climate change. Far-ranging ecological consequences would essentially be irreversible, accelerating a mass extinction.

“The best-case scenario is that we don’t have to deal with this,” Holly Jean Buck told me. But if we do decide that a geoengineering project is absolutely necessary, “the best case is a very short solar geoengineering intervention that is small in scale and doesn’t use very many aerosols, and keeps temperatures down while the world is seriously pursuing carbon removal, and wraps up within the century.”

A slow, managed phase-out of geoengineering over a time span of many decades may sound great, but when have humans ever been able to plan something that actually works as intended on a timescale of half a century?

More likely, Buck told me, there’d be a nasty overlap between solar geoengineering and authoritarianism. She outlined a nightmare scenario: “What if you have an authoritarian leader, and they say they’re going to fix everything with solar geoengineering, and it appears to work, and then they use that as a justification to continue being in power?”

Another scenario terrifies Buck: What if a dying oil industry decides to pivot to carbon capture to turn a profit off an escalating global crisis? That scenario alone is enough reason to consider nationalizing the oil companies, she said.

In the world where we’re already carbon neutral and we’re considering using geoengineering as a humanitarian supplement to ease our transition back to a stable world, as well as a conservation tool to help relieve stress on ecosystems and prevent species from going extinct, it may not be such a bad idea. “There’s basically zero research on [using geoengineering like] this,” Buck told me, “and it seems to me to be one of the more important justifications for considering using it.” That world, obviously, is far from where we are now. But as this book has hopefully shown, it’s not so far-fetched.

If political and social responses to climate change fail—or if we are so wildly successful that we expunge all aerosols from the sky and bring about a rapid rise in warming—would we maintain the same courage and optimism to, once again, trust artificial planet-wide cooling technology to save the day?

On the surface, geoengineering seems like an uncompromising escalation of the problems that got us into the mess we’re in. Still, it’s worth remembering: we’ve already massively changed the planet’s atmosphere and ecosystems, to an extent only rarely seen in all of Earth’s history, barring meteor strikes. Would it be worth attempting to explicitly undo

some of that damage? On the other hand, intentionally modifying the planet's atmosphere would be adding a whole layer of complexity to a world in the midst of rapid change.

In the future, "we" will need to decide what "humanity" means and what "the Earth" means in an era when the fates of people and the planet are more intertwined than in the entirety of history and the responsibility for this crisis does not sit equally. What we do to the Earth, we do to ourselves. Our best hope to avoid geoengineering might be mutual aid, trust, and solidarity on an unprecedented scale.

In 2049, at a global summit convened by the Marshall Islands, Indigenous people from the Arctic to the Okavango to the Australian Outback debated what to do in a months-long conversation that convened representatives from universities, religious groups, and the thriving youth ecological societies. The result was overwhelming: we would attempt to decolonize the atmosphere, very slowly, in an attempt to return the sky to those who were still alive and the hundreds of generations who were still to come. It was a centuries-long project that would honor the incredible spirit of cooperation humanity had developed. It was a way to repair the harm caused to all non-human species that had suffered for so long.

By 2050, we had accomplished the bulk of the work we needed to do as a civilization to stabilize our climate and ensure a livable world for the countless generations that would follow. This achievement, derided as wishful thinking or impossible just a few decades earlier, proved to be the most significant, most heroic, most improbable revolution in the history of the world.

The tech fixes continued: industrial-scale carbon capture, limited geoengineering, artificially intelligent management of variable wind and solar resources. But mainstream culture shifted from unregulated growth at all costs toward a mutual flourishing of people and nature, in which the circular, ecological economy created vibrant places for work and play that complemented their surrounding environment, not worked against it. We moved forward by prioritizing all kinds of knowledge, not just techno-utopianism.

The world changed so much and so quickly that we could no longer afford to ignore or rule out any reasonable way to stabilize the planet.

In these past three decades, not everyone has been on board with all these changes. There are rogue countries, rogue industries, holdouts from

the past, and war may still be unavoidable. But mainstream culture has shifted so much that we have developed systems to hold these people accountable and prevent them from harming the rest of us.

Through the first half of the twenty-first century, we came together and grappled with ongoing rapid climate change and what it meant to be alive at a moment when extinction was a reality and the rootedness of place was not so permanent as we once believed. To meet this need, we developed and practiced new spiritualities, which granted us the patience and grace to start the second half of the century with a carbon-neutral global society and a circular economy that aims to repair centuries of colonization and exploitation. We've fostered a rejuvenated new ethos for humanity.

We learned that our lives, our prosperity, our cultures, and the existences of the animals and plants we share this world with were bound up in the interconnected web of rain, snow, sunshine, winds, and weather that make up our atmosphere. By destabilizing this balance we learned that we were destabilizing what literally makes life possible on our planet. Now that we've stabilized our relationships with one another and with the Earth, there's no limit to what we can imagine.

## TAKING CARE OF THE EARTH IS A NEW (OLD) SPIRITUALITY

Since the dawn of time, humans have understood the importance of recognizing that we are one with the planet.

There's no way to put into words the softness of a sunset while sitting on a cliff high above the California shoreline, waves crashing in the distance, while pondering the sheer vastness of the Pacific Ocean before you. There's no way to describe the taste of a peach. There's no way to perfectly capture the giggle of a toddler as they tickle a caterpillar, or the wonder of a conversation with someone who has walked a different path than you but is intimately connected in that shared and fleeting moment. These simple luxuries ground us to the planet that brought us into being. There's a reason we feel deeply at home when we share these simple joys with one another.

What makes us human? What makes us love one another? These are the things we're fighting for when we're fighting for a stable climate.

By 2050, almost everything we know about the world will have changed. But these core, shared experiences of humanity will remain. The greatest gift we can give our future selves and those we share this space with is to radically act in our current moment with the deep and transcendent love of visionaries.

Kyle Whyte's idea of a civilization based on kinship, which he articulated in 2019, has a transformative effect, if you consider how it would radically change our idea of self, and what we might devote our lives to hoping for and working toward. "Instead of trying to force climate change solutions onto people," he told me, "if we're more attentive to relationships and consents, that kind of system would suggest a very different type of future than the one that I think a lot of folks are envisioning."

The urgency and anxiety that people have started to feel as climate disasters become more and more obvious is rooted in this reluctance to radically change a system that has benefited us. But if we take Whyte's vision, it will be easy to recognize that urgency as an illusion manufactured by a system built on distrust, blame, and hyper-individualism. In a world where we devote substantial time to building trust with one another—a relationship-based civilization—that urgency and anxiety will melt away because we will know, deep in our bones, that we are all looking out for one another. That we'll all be cared for, because finally we are working with the planet, not against it, just as Indigenous people have done for thousands of years.

Mary Annaïse Heglar, whose writing has come to exemplify the brave kind of visionary leadership that our moment demands, said that the world starts by imagining something. "Climate change isn't something that's passively happening," she told me, "it's an intentional act. Doing nothing is doing something. Burning fossil fuels is an action."

In 2050, science might also look and feel very different from today.

"Science is how we got climate change," Heglar told me. "It took science to figure out that fossil fuels can be used for energy. It took science to figure out where the fossil fuels were located.

"If we decide that we're going to use science for constructive purposes and in harmony with the planet and we start to listen to groups of people who have never lost their relationship to the Earth, then we start to see a more benevolent science, a more holistic science. Because what is science if

it's not the study of the Earth? If Indigenous people are seen as working in tandem with scientists, I think that would be a really beautiful thing. If we didn't have all of these ready-made barriers to separate ourselves, how much more innovative could we be? How much more empathetic could we be?"

From an Indigenous perspective, our civilization in 2050 might not even be human-centric at all.

"We should really start to take a back-seat role that centers us as stewards," said Kelsey Leonard, the ocean policy advocate from the Shinnecock Indian Nation, "as people who are responsible for fostering connection to our other non-human relations on this planet and allow for that life to be prioritized over our own.

"If we can really start to see the principles of UNDRIP [United Nations Declaration on the Rights of Indigenous Peoples] enshrined and applied to climate change policy and how we envision a climate conscious feature that's sustainable and that has equity, it needs to include those key aspects. If we actually lived up to the principles enshrined within the document, we'd have a better planet, a safer planet, a healthier planet, not just for Indigenous peoples but for everyone."

* * *

It's 2050. The world is carbon neutral. The economy is circular. Society has transformed. Our world is a place that has decided to radically change in its entirety because places like the Marshall Islands matter. Because you matter. Because we couldn't just go on like we had anymore.

Inequality still exists, it always will. But humanity has learned that we share more with one another—and with every other living thing on the planet—than we had ever imagined.

Our brush with catastrophe brought us into a painfully beautiful planetary relationship. It is such a remarkable time to be alive.

# Epilogue

We are not all equally to blame for climate change. Yes, the Amazon rainforest is burning at a record rate. Yes, sea ice is at an all-time low. Yes, genocide is ongoing, because rich people are trying to get richer.

This is the planetary dystopia of our time. The anger we feel toward the state of the world right now is worthy and necessary. It helps us focus our action.

But that's not the only story we can tell. We can also tell stories of love. Those of us with power must fight for justice, for a new system that values survival over profit and flourishing transformational change over the status quo. This is radical hope: knowing that the future can be better and knowing that we are the ones who must make that future happen.

The biggest change is within our own minds and hearts, to envision that a world like this is even possible.

This moment is scary, and traumatic. But we are in it together.

In all these different possibilities presented in this book, the most important one I want you to consider is that our future is all about the narrative that you tell yourself. That's literally how we are unconsciously able to move throughout our day, by trusting that the actions we take will lead to specific outcomes. Working for a good future makes that future possible. And working for a good future can't happen if we don't believe it's possible.

## WHAT'S THE MOST IMPORTANT THING YOU CAN DO?

My theory of change is simple: billions of people just showing up in their own lives, energetic and ready to struggle together.

Too often we hear that in a representative democracy, the most important thing you can do is vote. But what about the other days of the

year? This is a crisis; we don't have time to just wait until the next election.

To match the scale of the climate emergency, we need radical societal change. This always intimidates people, because it sounds impossible, too big to wrap our arms around. But what if societal change is just a bunch of individuals living their individually radical lives? This includes you. If we start with changing our own behavior, we can effect larger societal change. Because we need to accomplish both the radical systemic change we seek and radical personal changes in our own lives.

At first, this will feel uncomfortable—but will it feel more uncomfortable than dooming yourself and everyone you love to a future with a smoldering remnant husk of a planet?

So which individual actions matter most? The honest answer is, the ones that help make you personally more connected to the world and everyone in it. You should definitely run all the aspects of your life through a carbon-footprint calculator (you'll probably be surprised what you find), but the point here is to reimagine your relationship with the world in a way that helps you live a more fulfilling and healthier life to ensure our ecosystem survives, not to check off a certain number of boxes.

That's why I think the single most important thing each of us can do about climate change is to talk about it. With anyone who will listen. We exist in a crisis, and during a crisis, there are voices that often get drowned out. When someone talks with you about the climate emergency and how it's affecting them in their life, listen.

Talking about climate is what builds social and political pressure for radical action. It's also a radical personal step itself in a world that treats conversations about climate change as taboo, even in the company of friends. Talking about climate change is how we build a better world. Learning and listening and getting excited about new ways of existing on our beautiful planet is impossible without conversation.

What about the hundreds of corporations that are responsible for the bulk of emissions? What about the oil and gas industry? We need to nationalize these horrible companies or shut them down. But to do that, we need to talk about it first.

And that means setting the idea of apocalypse aside. The old world is already gone. We will remain lost, floating, undefined until we start our shared work on building the new one.

One month after Hurricane Dorian's apocalyptic wrath through the Bahamas in late 2019, more than a thousand people were still missing and seventy thousand were homeless—in a country of four hundred thousand. The storm also inflicted a severe economic shock: 58 percent of the country's GDP was lost overnight. Prime Minister Hubert Minnis called it "one of the greatest national crises in our country's history."

But even these bleak facts fail to convey what it must have been like for the people hunkered down on that dreadful day. Unearthly sounds of rending sheet metal and splintering wood, the rain and sand and ocean water pummeling every surface. Stories emerged of a man, wheelchair-bound and sitting in floodwaters for forty-eight hours.

It is a testament to the human spirit that anyone survived at all.

As a force of nature, Dorian was beyond compare. It was the strongest hurricane to make landfall in all 150 years of documented storms in the Atlantic Ocean. But its cause was anything but natural. Centuries of decisions were embedded in those winds and waves.

In the immediate aftermath of the hurricane, headlines described the Caribbean archipelago with words such as "crippled" and "hell" and "devastation"—and then, as usual, the international media went almost entirely silent.

Climate change itself is simple. I can explain it in one paragraph: by a quirk of physics, fossil fuels are an almost perfect store for energy, and their discovery helped accelerate centuries of colonialism, locking us into an extractive relationship with our planet and one another. The subsequent imbalance in resources was exploited by those with economic or military power, enriching the few at the expense of the many.

But the fix is not simply technical. The too-familiar apocalypse narrative leaves no room for justice or regeneration. We must do better. Somehow we must also learn to treat one another better.

But how do we do that? Figuring out exactly the steps we must take to address this emergency, that's hard. There are no computer models, no satellites, no radar systems, no hockey-stick graphs that can help us chart our way toward the kind of civilizations we urgently need to build.

Surely the only way to begin is to reckon with the gravity of this moment, reconnect with our shared humanity, and forge on together. In the words of President John F. Kennedy, we must do these things "not because they are easy, but because they are hard." Slowing down planetary collapse

is the hardest thing we may ever have to do as a species, but it is also—unequivocally—the most important.

In all of history, no other human force besides armed conflict has driven more people from their homes. No other force could destroy an entire island overnight, could make vast swaths of the world uninhabitable, or cause the graves of hundreds of centuries of ancestors to permanently sink beneath the sea.

Today there are more than 70 million forcibly displaced people around the world. There are no reliable figures on how many of these displacements are related to environmental degradation or climate change, not least because climate change now deeply affects almost every place on Earth. In our lifetimes, without a radical change, this number could increase tenfold.

Climate writers often slip into a war metaphor. But climate change is not a war. It is genocide. It is domination. It is extinction. It is the most recent manifestation of how powerful men throughout history have sought to steal from the less powerful and dismiss them as merely inconvenient. Understanding climate change in this way transforms everything.

Worse than the way we talk about this moment in history is the realization that the narrative of climate apocalypse is not a catalyst to action. Instead, it helps reinforce the business-as-usual trope: If we're going to lose the Bahamas anyway, why change course?

From the descendants of slaves in the Bahamas, forced once again onto boats as they fled, to the burning homelands of Indigenous peoples in the Amazon, their forests cleared for cattle ranching and soy plantations, to the Syrian refugees of a conflict in part triggered by years of drought, the climate emergency looks like violence.

There is no need to convince anyone in the Bahamas that everything is different now. As a country that has contributed a mere 0.01 percent to global greenhouse gas emissions yet suffers some of the worst consequences of the climate emergency, no one there needs convincing that inequality is part of the problem.

What they also know with certainty is that it will take years—decades, even—for the residents of Abaco and Grand Bahama islands to rebuild their lives from the rubble. Writing in *The New Yorker*, Bahamian writer Bernard Ferguson captured this feeling when he said: "The death toll, when tallied,

may never be a complete or accurate expression of the lives that the storm claimed."

For people living on the front lines of climate change around the world, there is no physical defense against this kind of unnatural, human-made violence. "The most potent defense that we have," added Ferguson, "is to strategize and organize collectively, across countries, to reverse our course."

This is what the climate emergency looks like—not stories of solar tech and world leaders signing a lukewarm, lowest-common-denominator agreement, and definitely not a simple statement of long-established physical science.

It is the minute-by-minute revolutions happening in nearly every home and neighborhood around the world where people are simply claiming the right to exist. It is not just the contemporary image of a family standing amid their island ruins; the climate emergency looks also like the five-hundred-year history of colonialism in the Americas. This has been happening for a long time, because climate change is a crisis of our relationship with one another and with nature.

What this moment needs, more than anything, is moral clarity, the kind demonstrated at the United Nations by a Swedish teenager and countless other young people from around the world.

We need to know, viscerally, that we can no longer abandon our neighbors in their time of greatest need. We need to relearn our interdependence. We need to learn a way to rewrite this story that doesn't end in apocalypse.

* * *

In the meantime, my most immediate advice is to go outside and enjoy your present Earth. There are physical and mental benefits of getting outdoors. Do a bunch of these things (or at least a few of them):

**Go for a walk in the forest.**

**Make art (outside).**

**Go snorkeling.**

**Actually meet another living person with shared interests.**

**Look at the bugs.**

**Go bird-watching.**

**Go to a star party and ponder your place in the universe.**

**Go kayaking.**

**Hike across an island.**

**Go to an orchard and pick fruit at peak season.**

**Stay in a tree house.**

**Go to a baseball game.**

Doing these things will give you inspiration to do more things:

**Open a (nonprofit) business:** As the owner of a house-cleaning business that uses green chemicals, for example, you have a chance to talk about climate change with each of your customers.

**Run for office:** For the past few years, you've heard firsthand from members of your community demanding change. You can help bring it to them.

**Become a teacher:** The best way to change the future is to help the people of the future empower themselves through knowledge.

**Become a farmer:** Whether you live in an urban, suburban, or rural community, the land is what sustains us. You owe it to the Earth to be a good steward of the land. Find a patch of soil you can farm and enjoy its many bounties.

**Demand local action:** Working with local community boards on something as simple and necessary as adding more bike lanes will help ensure a people-powered future comes into existence. And because bikes are one of the most energy-efficient inventions in human history, you'll immediately improve the environment.

Most important, talk about climate change with people you are close to. Build solidarity and like-minded support networks and a shared vision of a better world.

# HOW TO TALK ABOUT CLIMATE CHANGE WITH PEOPLE YOU DISAGREE WITH

I grew up in a coal-mining and farming town that voted for Trump by a 43 percent margin. Talking to my parents about climate change has always been difficult.

But the time to be angry about climate denial is over. It's time to find common ground—there's literally no time left to debate the problem anymore.

By building up an irresistible vision of a better world, we'll be able to overcome the insidious influence of the fossil fuel industry with the biggest, most powerful people-centered movement in world history. That kind of a revolution, to me, is the only path that will lead us to where we need to go in the time we have left.

One person I trust on things like this is Katharine Hayhoe, a climate scientist who has made it her personal mission to convince people that we are more alike than we think. She told me, "The reality is, we're never going to agree on a lot of things. I think we have way more in common that we can move forward. We have so much in common, and no policy should be put in place just for one single reason. We can't really afford that luxury. If somebody's on board for a different reason, that's okay! We need to stop being all purist about it."

As an example, Hayhoe points to the issue of coal as one that can bring different groups together. "We shouldn't be using coal, because it kills people. Two hundred thousand people in the United States and five and a half million people around the world die every year from burning coal and from burning gasoline. If you're a person who is simply concerned about that, but you say it didn't cause climate change, I'm totally fine with us being on the same team advocating for a price on carbon or stronger emission controls on fossil fuels."

Her words remind me to be patient during times when I want to just burn down the world. Coal miners are not the enemy. Your cousin who flies business class isn't the enemy. Your neighbor who eats meat is not the enemy. The enemy is the system we're all embedded in—the same system that's been the engine of extractive, colonial, genocidal exploitation of the only planet we all have.

Even though this book tries to outline how a different system might come into being and what it might look like, I'm the first to admit that I'm not sure what exactly is going to happen during these next critical decades. The good news is, we get to envision and enact this future together. And I have no doubt we'll do it—because we have no other choice.

## WHAT WILL YOUR WORLD LOOK LIKE?

This moment in history needs you. Knowing what you can personally do is easier than it seems. You already know what issues you're passionate about. You already know what kinds of things you're good at. Where those overlap is where you should devote the rest of your life.

Your life is your own story to write. You get to decide—every single day—what your relationship with the world is. That's the beauty of this moment: you have the ability to act much more quickly than the political system. In fact, you could even change some relatively major stuff about your life right now! Seriously: put down this book, go for a walk outside, and think about it. Imagine a better world and how you might be able to play a part in it. Invite a few friends over to talk about it. And then figure out how to make it happen. You can do it. I believe in you.

* * *

To help you figure out how to make your future Earth a reality, I've worked with some friends to prepare the following action guide and reflection exercises to inspire your imagination to contemplate what's still possible in the age of warming.

## A GRIEF EXERCISE

Grief is more than sadness about loss; it is a bodily experience. We often think about it in the context of the death of a loved one, but grief can extend to other losses. As climate change is featured more in the media and as we are bombarded with images of ecological loss, many people may be working through unconscious and unprocessed grief. Building on listening practices, we can begin to process and metabolize our pain about the Earth with a creative mourning ritual, which can help us move some of the heavy energy around this topic into a more creative, communicative opening.

Listening and care are two acts that can look like "doing nothing." Anyone participating in these activities, however, knows how much work it is to undo some of the cultural lessons we may have picked up about hyperproductivity and the cultural mandate to push past natural boundaries to produce endless growth.

It can be helpful to announce that the purpose of gathering is not to "solve" climate change. In my experience, people often become very solutions-focused when discussing climate change. This can put a lot of pressure on the conversation, and it can also be derailed by a hyperfocus on a single solution. This focus can often be a way to escape the discomfort of being with this thorny and often upsetting topic. In order to make space for people to explore and express their feelings about climate change, and to start the difficult transformation of personal grief into collective action, deep listening and care work is important.

## GETTING GROUNDED

People tend to seek refuge in a storm. By grounding into our experience, cultivating an inner sense of safety, and locating some resources we can turn to, we can make space for one another to experience the challenging aspects of grappling with the rupture, loss, and grief of ecological crisis.

Sometimes when we come to group practices we might be bringing a lot of energy from whatever we were doing before, or we might be thinking about what we have to do next. This grounding practice can bring your awareness into the actual time and space you are in and begin to settle your central nervous system. Of course, sometimes when we become more aware of our experience, we become aware of just how tired, anxious, or hungry we are. Whatever you notice is okay! The point of this is to start unwinding some of our forward momentum so we can all be in the same space together.

**Step 1. Assume an attitude of receptive curiosity**

This practice is more investigative than goal-oriented. Part of becoming familiar with your own subjective experience and its relationship to your nervous system is just being curious about what it feels like. This is not something to "get right." If you don't feel more calm when you're done, it doesn't mean you did it wrong. You're learning about your experience. Maybe for you, there is numbness in part of your body when certain thoughts come up. Maybe another part of your body feels more engaged. If, a little at a time, we are able to start noticing and not judging these things, then we stand a chance of offering those aspects of our experience some compassion.

**Step 2. Start by just sitting**

Give yourself permission just to sit. You don't need to make anything happen or achieve a state of extreme focus. If you find yourself defaulting to a state of striving or straining, give yourself a break. Knowing that while you might find yourself going on elaborate list-making adventures (it's always grocery lists for me!), you don't *have* to indulge every idea or thought that comes up. You can just sit with them, neither entertaining them nor pushing them away.

**Step 3. Tuning in to the senses**

Part of tapping into our body's innate resilience means being able to drop out of the analytical aspect of the mind into the physical felt sense of consciousness. For some people who have suffered trauma, the body does

not always feel like a safe place to be, so please feel free to try this for only a minute at a time. There is no need to force yourself through this. We explore, and learn, and can take whatever small steps we can when we have the resources to try.

A great place to start is with the felt sensation of your feet against the floor. Notice if you start thinking or narrating about your feet, and see if you can bring your awareness back to the felt sensation. Feel the gravity. Feel the pressure. What is interesting about this? Does the floor feel solid? Can you imagine that you are supported by and connected to the floor? Continue to notice the other points of connection. Your legs and butt against the cushion or chair. Be curious. Breathe. Scan your back from the base of the spine to the shoulders. Are there positive sensations? Points of tension? Can you get curious even about the neutral sensations? What is the temperature? Just be aware, and be curious. If your back is against the seat-back, notice that sense of connection there. It's okay if it's just a vague or general sense of sitting. Allow yourself to feel it without forcing yourself to concentrate.

If, by the conclusion of this, you were able to feel into your body for only a moment, that's still awesome. The process of familiarizing yourself with the felt sense is not easy for many of us, whether because of trauma or because our jobs require us to be disembodied on the internet all day. Giving yourself even a brief opportunity to feel with no particular goal can be incredibly healing. Even just cutting through the forward, task-based do-do-do momentum of your day can be restorative.

**Step 4. Checking in with the ground**

Part of a grounding practice is learning to be in the space where we are. Is there anything about the particular moment or room that you are in that points to this specificity of place and time? Sounds, temperatures, a general ambience? These are not things we need to push out of our experience in order to concentrate. Rather, we treat all aspects of where we are and use them. You might notice that you are straining to be elsewhere or to project yourself into the future or past. This tendency is totally fine. We're just going to see if we can use the senses to come back to the present. The breath can be a great anchor, or the feeling of connection with the floor.

Maybe there is a droning sound from an air conditioner. That can also serve as a place to rest awareness.

**Some questions you can journal about after doing a grounding practice:**

- What was interesting about sitting with the felt sense?
- Were you able to notice positive sensations? What were they? How about negative sensations? Were you able to feel neutral sensations? Was anything interesting about any of these?
- If you were able to feel very in the room you are in, what were the characteristics of that feeling?
- If you were able to notice the mind imagining the future or reminiscing about past experience, what was that like?

# REFUGE

We all have inner resources that we can turn to when our experience of the world feels challenging and stressful. Consciously assembling some of those tools can be a great tool for this work. Here are some tips for cultivating the resources that can help guide you through this work.

1. Who are some people you could call on to guide and inspire you as you confront your feelings about climate change? They could be ancestors in your family who lived through difficult events, historical figures, mentors, or loved ones who give you a sense of being cared for. They could even be characters from literature or film who embody the resilience and values you might hope to embody. Take some time to call these beings in as your resilience team.
2. Is there a place where you feel particularly safe and at ease? Take some time to call that place to mind as a sense experience. What does this place smell like? What are the sights you can see? Are there physical sensations associated with this place? What does it sound like? Take some time to make these sensations palpable. Let yourself experience what it is like to be there. And let your body feel the sense

of ease or safety, or whatever other feelings come with letting yourself be in this place.

3. If this place and this team were to live in a place in your body that you could access when you needed them, where would that be? Take some time to see what comes up. It can be easy to use your heart or the center of your chest, with a gesture of placing a hand there, when you need to call up your place of safety and your resilience team. But something else might come up for you. Experiment with some movement and listening to your body, and explore where this safety and resilience could live.
4. Make a commitment to remember this sense of ease when you feel unsafe, uncomfortable, or agitated during practice or conversation. This isn't about pretending you don't have challenging emotions about climate change, but rather enabling you to be present and to offer refuge to yourself and others even as inner or outer turbulence arises.

# ENGAGING BEWILDERMENT

What happens when you have no frame of reference? You're more open and you notice more. Once you "know" and your mind has related your present experience to preconceived frameworks, you only notice things in a way that relates to that frame you've chosen.

The mind is always telling stories about our experience, and if we notice when it's doing that, maybe we can learn to tell stories in an open and generative way rather than a nihilistic and despairing way.

Engaging Bewilderment as a practice can be experienced in a number of ways. Some methods I've practiced are playing recordings with unusual instruments or field recordings with a variety of sounds; participants listen and notice when their mind tries to identify what is creating a sound and see if they can open their awareness back up to the full experience of listening without focusing on what is producing the sound.

Another practice is to have a big bag full of items with a variety of textures. Participants close their eyes and reach into the bag to select an item. It might last for only a split second, but can they just feel the item without rapidly identifying what it is?

After this, participants can spend ten minutes sitting and journaling about what came up for them in this exercise, any insights they had. You can then open it up to a discussion about the experience.

## LISTENING PARTNERS

Bearing witness to our own suffering and the suffering of others is a form of compassionate action. Breaking into pairs, we take turns listening to each other. Each person has five minutes to speak. The speaker is practicing putting their felt sense into words. The listener is practicing listening, without shaking their head yes or no, and without planning their response. If the listener notices their mind wandering, they can simply bring their attention gently back to their partner's spoken words. After five minutes, the partners switch. After each partner has spoken, the final five minutes are spent in open conversation between the two, where they can discuss what it felt like to do the practice. The group then reconvenes and people can discuss any insights they had doing this practice.

## PARTICIPATORY FRAMEWORK— CREATING A GRIEF RITUAL

Building on the practices of being open to bewilderment and deeply listening to and holding our own emotions and others' perspectives about the climate crisis, we move now toward metabolizing our grief through collective practice. How do we as individuals process rupture, loss, and change? As the stress of change and loss impacts our bodies and minds, we might react in the form of patterns we learned at a young age. Depending on how we were taught (or not taught) to navigate ruptures in our lives, we might be repeating these patterns in response to the climate crisis. Some of these reactions might have helped us survive as young people and maybe made our suffering easier to manage for ourselves and those around us. Our work now is to sort through and process some of these patterns so we can move toward responding and participating rather than reacting from our survival conditioning. Responding is more flexible, intentional, spontaneous, and curious. We can face change together rather than reacting

in ways that prevent us from truly being with one another. There is a lot of pressure in our culture to "get it together" and "move on" from loss without the support to really process it. Here are some tools a group can use to do some relational healing around the climate crisis.

## Acknowledging the Loss

Being able to speak the truth without the pressure to sugarcoat our experience of loss is an important aspect of acknowledging the loss. We cannot begin to create a coherent story for navigating the climate crisis without first being able to name what we are experiencing. Here are some things to discuss in pairs and in community, or through journaling:

- What do you feel you've already lost to climate change?
- What are you afraid of losing?
- Can you name the sensations and/or emotions that arise as you identify what feels different?
- What are some values you feel are being lost that you might like to embody—in the short term within this work, and in the longer term in your daily life?

## Re-membering

Re-membering, or piecing our story back together after the rupture of loss and change, is a form of bringing that which is felt to be absent or lost back into our present-moment experience. Sharing this with others allows a group to prepare the ground for cocreating new narratives. It also allows the group to return to life and interactions with fresh eyes. If we don't show up for one another when there is suffering and pain present, we run the risk of shallow stories emerging, rather than deeply rooted ones coming to fruition. Feelings of pain, anger, frustration, and despair are reactions based on care: we care about people, places, and things that are suffering and under threat from climate change. Can we honor that care as a form of life, love, and connection?

- What reminds you of the ways you have loved and cared about this world, other beings, the environment?
- Can you express this through poetry, drawing, sound, movement?

- Write a letter to yourself from your future self or an imagined future community. What advice or words of support do you feel moved to communicate?

## Integrating and Sharing Gifts

Based on all of the work so far, the integration and sharing can come in many forms. If people have been using visual art and drawing, you could experiment with a large shared mural on butcher paper, improvised from work people have done on their own. If people have been writing letters, poetry, or journaling, you could invite them to share. Movement and sound can also be shared and spontaneously combined if people feel so moved. Facilitators can act to encourage and support this cogeneration of collective expression. Some key things to explore:

- What feels like a major insight or breakthrough that you and/or the group have had through this process?
- Is there something that came up for you during this process that you would like to bring with you out into your life? A small step that you might actually take? Or a feeling that could serve you in difficult times?
- Is there anything you feel moved to share with an individual or with the group?

## Best Practices

Facilitators should have some experience holding space for collective emotions, whether through facilitating support groups, meditation circles, as a caregiver, or as someone who has consciously moved through their own grief about interpersonal loss. Also helpful is any background in trauma sensitivity and movement, such as yoga or other somatic practice. If you can find a collection of people who each have some experience in one of these categories, the group can also function as a kind of skill-share. I think of this group as a sort of “resilience team” that can help hold space for newcomers to the topic for the difficult emotions that often come up when discussing change.

Having some background in grief or trauma sensitivity can be great for work like this, but if you're a newcomer to this work, don't let that stop you from offering compassion and care for fear of "doing it wrong."

**Emotional First Aid.** Many people come to this work with a lot of fear and pain. Even as facilitators, we might notice these feelings come up for us. While we want to leave some space for working with this pain, it's also critical to be aware of psychological and spiritual injury that can occur when people feel rejected, lonely, and panicked. When we are creating a space for working with something as potentially upsetting as climate change, we need to have some awareness of these triggers. Avoid criticizing the way anyone responds to the climate crisis, and aim toward curiosity and more questions.

**Speaking from your perspective.** Situating your words from your perspective can be a great way to cut through assumptions and biases. When you speak for yourself rather than dictate what an assumed shared experience is, you offer an invitation for connection, instead of universalizing your opinion. When we speak from our own perspective, we can leave space for this perspective to change with awareness and in relationship to the group. This can include starting sentences with "My experience has been," or "I have noticed," rather than an assumed "We always . . ."

**Non-judgment.** There can be a tendency to label some emotions good and some negative, and then to disown or avoid those considered negative. In this work, we can take the perspective that all emotions are valuable information from our bodies and psyches in relationship to our environment. Be careful not to comfort people out of their challenging emotions, but also be careful of overindulging any emotions. We aim to strike a balance by being engaged witnesses offering refuge and serving as a container for experiencing this process together.

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# AN IMAGINATION EXERCISE

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Welcome.

We are in a moment of apocalypse. We cannot return to the world that was, because that world no longer exists. Instead, it is up to us to help bring

a new world into being. People all over the planet have been imagining beyond apocalypse forever. In your blood lineage, there is someone, somewhere, sometime in recent or distant history who has done just this. Step one is to remember that you can do this—that we can do this—because we have done it before.

The following pages are a guide and an invitation to imagine and enact the story of your future. Imagining how the world could be transformed is hard, emotional work. But, it is necessary. Doing this work with friends makes this hard work easier and less isolating.

The bad news is that, for many people, it too often feels easier to imagine the end of the world than to imagine a world/worlds beyond our current system of extraction and exploitation. The good news is that the power to change that reality is already inside you. The key to unlocking that capacity is grief work.

As you begin to grieve loss, you start to engage your imagination, your creativity, to foster personal agency and positive action for the future.

Remember, care work is climate work. We are not going to get to where we need to go by tinkering around the edges of a fundamentally unjust system. This is not just about building bike lanes and solar panels; this is about building a new society. We've got to know in our hearts that every single person truly matters, and that we *can* bring one another through this time to a future Earth that works for everyone.

Below are a set of principles that guide much of my visionary work, followed by a sample exercise for practicing local imagining work. Stories and draft agendas can be found at www.ericholthaus.com/futureearthstories.

# PRINCIPLES FOR IMAGINING A FUTURE EARTH

**"Small is good, small is all."** *—Emergent Strategy principle*
Start smaller than you think. If this is your first time doing group imagination work, three people (including you) is a good number.

**Begin with the end in mind.**
Ask yourself why you are doing this imagining work. Do you want to create some hope in your neighborhood? Do you want to catalyze your friends or

family to take action? Are you trying to shake up conversations in your whole city? Whatever it is, get clear about it and let it inform your planning process. If you want to create hope in your neighborhood, then that goal should shape who you invite and your plan for stories you want to create with the group. This goal will look very different than if you want to create and implement compelling big-scale reforms and new visions in your city.

**Collaboration over competition.**
In Western industrialized nations, we tend to believe competition is the best way forward. But the story of evolution is largely a story of collaboration. Visioning and working together are critical for survival. (And there are people who still believe competition is the best way forward. Be wary. But remember that everyone has the capacity to transform.)

**Iterate, iterate, iterate.**
There is no "right" vision. Imagination influences reality, which influences future imaginations into infinity. Create your vision, learn about other people's visions, let your visions influence one another, then vision again! Rinse, wash, repeat.

**Me to we.**
You matter. Your individual vision and imagination are necessary. *And* the power to spread and scale comes from weaving and building our imaginations into/onto one another. Never forget that you matter. Never forget that we matter. We can't get there without you, and you can't get there on your own.

**"Wherever there is a problem, there are already people acting on the problem in some fashion."** *—Allied Media Projects network principle*
Find them and listen to them. They might be in your neighborhood, in your watershed, or on another continent, but they exist. They might be people you have previously ignored. They might be people American society has generally deemed less-than or people our social systems have actively marginalized. Listen anyway! Sometimes the best thing you can do to help solve a problem is to pass the microphone.

# SAMPLE PROCESS GUIDE

**Step 0.** *Gather your people.*
People: 3 to 8 people
Time: 2 to 3 hours
Location: A living room, or den, or dining room—any space where you won't be interrupted and can talk openly and at ease.

**Step 1.** *Check in.*
Go around the circle and let each person share how they're doing today, as well as what they're most excited about for this time together.

**Step 2.** *Set your scene.*
*Pick a place and time at which to dream.*
**Place:** Ideally it's a scale at which you *already* believe you have power to make change: homes, building(s), or neighborhoods are usually safe bets. The scale of a city is probably a stretch, but it might not be, depending on who's in your circle. At this stage, state or national scenes are almost definitely too large.
**Time:** *Five* years often feels far enough away to allow for some real change but close enough to feel real, not intangible. Or maybe you want to start small and focus on having a single conversation with a friend—five days should be enough for that, and depending on who it is, imagining that conversation in advance might be super helpful. But if that doesn't work for your group, figure out what feels better.
*Brainstorm some problems* that are being faced at the scale you picked. I suggest ten to twenty minutes for this. Then, as a group, pick one or two problems that you are collectively most interested in working on.
*Pick your characters.* Definitely include yourself. Include other people you care about as well as people you think are relevant to the problem(s) you're working with. If you're feeling adventurous, include people who don't believe you yet.

**Step 3.** *Dream.*
*Write a story about what your place/time is like after solving the problem(s) your group decided on.* This is best done individually and in a quiet room. Laptops or pen and paper are equally fine. Word count is less important

than expansive imagination. Take at least thirty minutes to do this and know that it won't be enough time to imagine a future Earth. (You could write for two hours and it still won't be enough.) Story ideas are a conversation between two people in the future or a letter from a future person to a present-day person (such as me in 2060 writing to my nieces, nephews, and other siblings).

**Step 4.** *Discuss.*
Share with one another what you envisioned. You can swap stories, read stories out loud, or just discuss what you each wrote. Pay attention to similarities and differences in your visions. Do you notice any patterns?

**Step 5.** *Next steps.*
Decide what you want to do next. You could:

- Do a second round of writing, adding to the stories you wrote and incorporating elements (characters, solutions, aspects of setting) from the stories of other group members. Share again and watch magic unfurl!
- Share the stories with people outside your group. Pick a deadline, polish up what you produced, and figure out how you want them to be shared. You could:
  - ___ put them together to be shared in paper form, like a zine or small booklet.
  - ___ put them online on a blog or someone's website.
  - ___ email them to your friends as inspiration for them to come to the next visioning session.

  Whatever you decide, it's most important that you share your vision(s) with people in the community you dreamed about. That's where you'll have the most influence and impact. You can also share them at www.ericholthaus.com/futureearthstories.
- Host another gathering with new, different, or more people. Don't forget to update your Why, or make sure your original reasoning still sticks.
- Do anything else your heart desires.

# REFLECTION QUESTIONS

- What are the identities of people in your group? What are their genders, races, and classes? Do they all speak the same language and with the same ability? What is their relationship to children? What is their citizenship status? What identities are present in your neighborhood that aren't present in your group? How might you invite people with those identities next time? How might you support them to have their own visioning activity in preparation for swapping stories, insights, and ideas in the future?
- What elements of the present/past created or shaped the future you imagined? Discuss with your group. If you aren't sure, research these elements before the next gathering.
- Discuss what is preventing the worlds you imagined from becoming a reality. Are there local ways your group could help remove those barriers? If you're already working on it, are there ways you could connect with groups in other places working to remove the same barriers?

Most of all, have fun and don't hold back. Remember, you are building a world that is going to be irresistible.

# Acknowledgments

This book is my effort to imagine a radical vision for what our future could look like. These pages are my love letter to the world, and like every love letter, sending it causes me to feel very vulnerable, but I'm ready.

Most of the work on this project happened on the occupied homelands of the Mdewakanton Dakota people, but also on the lands of the Klallam, Tohono O'odham, Kaw, Lenape, and Haudenosaunee Confederacy. For hundreds of years the Mdewakanton Dakota people lived in harmony with the world around them, especially the waters of the Mnisóta Wakpá, which gave them life. When European settlers arrived, they were violently forced off their lands and their families were broken up, in an attempt to erase them. But they are still here, and we have a lot to learn from them.

Acknowledging this history is not enough. I know I must work to repair the historical damage that I personally benefit from, and work toward a world that centers on justice. That spirit of repair guided this entire project.

In my consultation with Indigenous peoples as part of this project, especially with peoples from the Marshall Islands, I have learned that the future is never fated. We are always reinventing ourselves. That's part of what makes us human. The climate emergency is not the first existential threat we have faced as a species, and it's possible for us to radically change course. But to do that we must listen to people with radically different experiences and views.

I've also attempted to do this project as a low-carbon-reporting experiment. Instead of personally traveling to the key places I describe, I've tried to let people from these places tell their own stories as much as possible, through both phone calls and writings. I started this project fascinated by the Marshall Islands, and I tried to speak with as many people there as I could. I then learned the stories of people across Micronesia, about how their lives were bound up not only by the pollution from distant countries but also by the nuclear legacy and the economic pressures of

colonialism. In the five years it took to compile this book, I spoke with hundreds of people in dozens of countries. I didn't talk with as many people as I wanted to, but this is just the start of a reporting philosophy I will be continuing for the rest of my life.

In preparing this project, I'm sure I've made mistakes and will continue to do so. I apologize for any further harm I have caused in mischaracterizing the challenges we face from my vantage point. Putting this book together has been an exploration of my own privilege. It's especially important for me to make sure that I'm doing this in a way that is respectful. I've learned that I've still got a lot to learn—but the hopeful part is that the futures that are still possible will be unlike anything I've ever imagined. This book has changed me, and I hope it changes you too.

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I forget now who gave me the best advice I got throughout this process: "The key to writing a good book is to write a bad book, and then fix it." That goes for everything we do, every day. The only things that matter are that we struggle together, that we learn from one another, and that our work bends toward justice.

Thanks especially to Roscoe and Zeke, for holding my hand and taking so long to go to bed, and for giving me the courage to imagine a better world. This book is dedicated to you.

*Eric Holthaus*
*November 2019*

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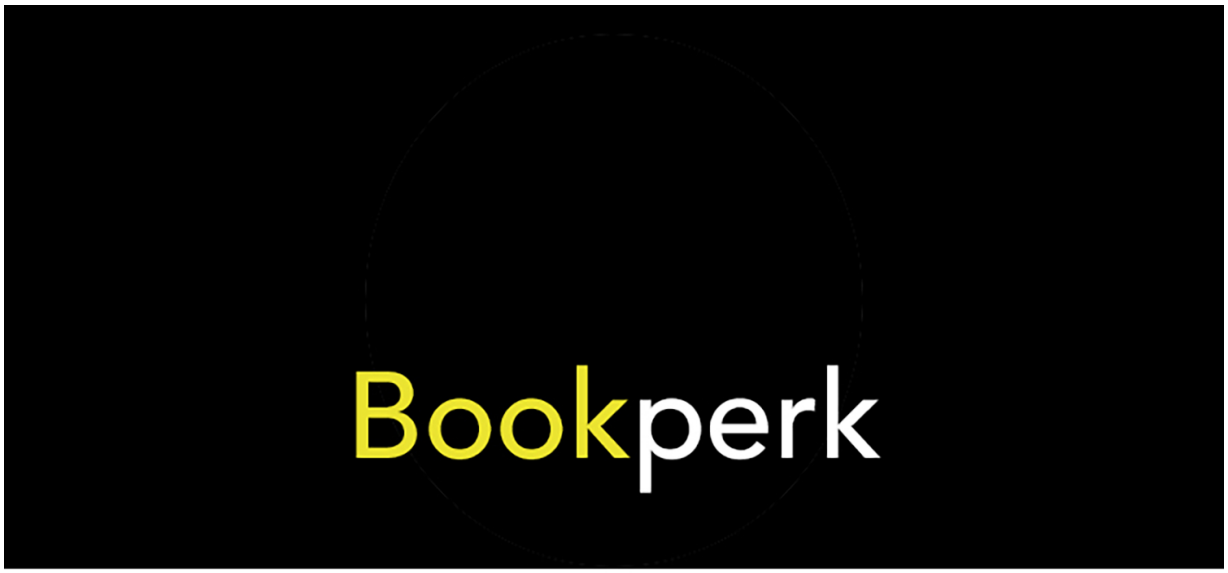

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